SPECIAL ISSUE: 1001 MAC PRODUCT REVIEWS

# MacUser

AUGUST 1992
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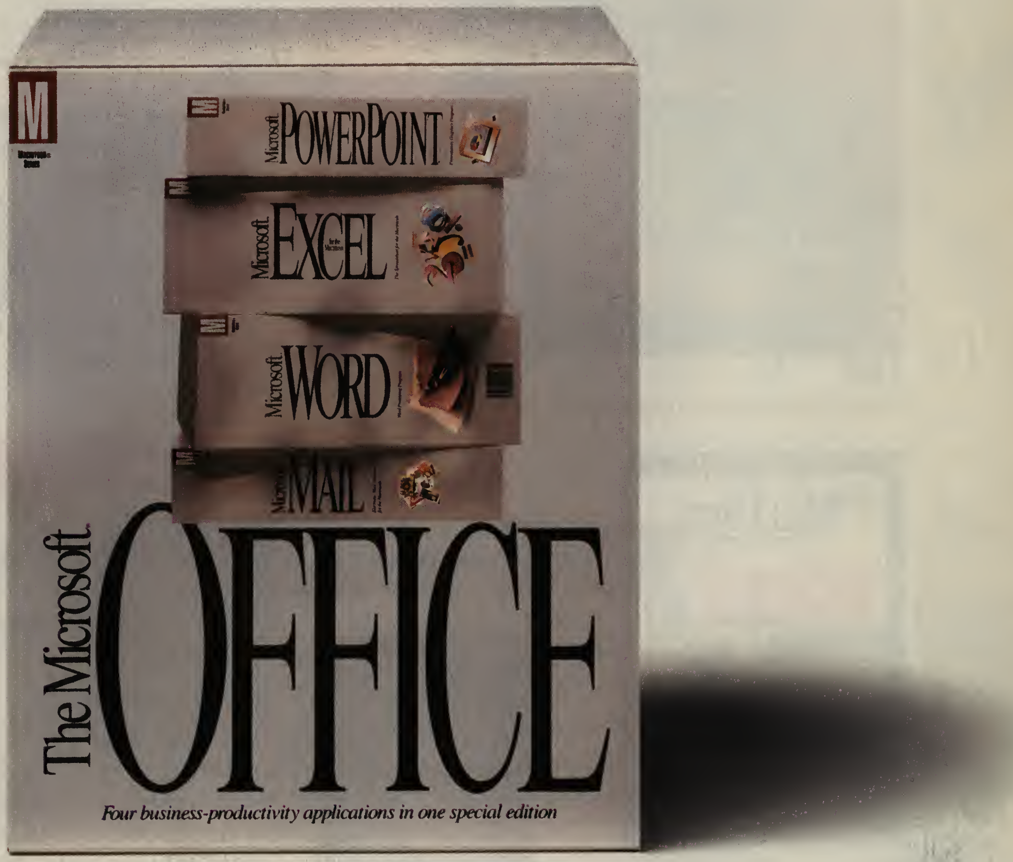

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# MacUser

**AUGUST 1992**
**Volume 8 Number 8**
**On the cover:** The first member of Apple's Newton family of personal electronics is slated for release in early 1993.
**Cover photo** by Walt Denson

**158**
Penny-pinching color-monitor bargains.

BUYER'S GUIDE
MacUser
MINIFINDERS
1001
MACINTOSH PRODUCTS

**87**
1,001 Mac hardware and software reviews.

**42**
Hewlett-Packard's pint-sized hard drives.

**201**
Apple's VITAL road map to seamless connectivity.

## Features

### MiniFinders Buyer's Guide

COMPILED BY BRUCE MEWHINNEY

It's our biggest buyer's guide ever! Get the bottom line on 1,001 Macintosh hardware and software products in more than 40 categories — from hard-disk drives, display systems, scanners, printers, and input devices to word-processing, spreadsheet, database-management, and graphics programs as well as utilities — all in a comprehensive, concise minireview format. ........................................ **87**

### MacUser LABS Perfection for Pennies: Autosynchronous Monitors

BY WINN L. ROSCH

Autosynchronous monitors have been a popular low-cost color-display option for PC users for years, but they haven't fared well on the Macintosh — until now. We tested 14 autosyncs and found several that are ready for prime time in the Macintosh marketplace. Find out why these monitors may be the perfect multiplatform display solution. ............................................................ **158**

## Departments

**Jon Zilber**
When bad things happen to good reviews. ................ **23**

**Michael Swaine**
If a picture's worth a thousand words, what's the value of multimedia? ........................................................ **29**

**John C. Dvorak**
Style crazy after all these years. ............................ **342**

**Letters**
Views on voice recognition, database debates, scripting the future, and why System 7 upgrades are like eating your vegetables. Plus: your chance to speak out on the high cost of upgrading. ............................................ **13**

**Zmac**
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**Advertiser Index** ............................................ **250**

**Marketplace** ...................................................... **312**

## Sections

**NEW ON THE MENU** ..... 41

Sneak Preview: Introducing Newton — with Apple's ingenious integrated assistant in your pocket, you'll stay informed, industrious, and in touch. Plus: Claris' new FileMaker Pro 2.0, the latest in OCR, and HP's 1-ounce hard drive. ..... 41

**DESKTOP PUBLISHING** ..... 181

**Prepress**
How to choose the best strategy for perfect desktop color separations. ..... 183

**BRIDGES** ..... 199

**Integration**
The vital stats on VITAL, Apple's ambitious blueprint for multiplatform distributed computing. ..... 201

**PERSONAL MACINTOSH** ..... 215

**Personal Best**
Was tax time even more taxing than usual this year? Steven Bobker explains what went wrong. Plus: Easter egg of the month. ..... 217

**Shopping List**
Before you replace your mouse or keyboard, check out these 13 hints on how to buy input devices. ..... 223

**POWER TOOLS** ..... 227

**Techniques**
A SCSI survival guide: untangling the gnarly mass of cabling confusion connecting your hard drive, printer, and other peripherals. ..... 228

**Beating the System**
Get some sound advice from Bob LeVitus: From whale songs to "Don't have a cow, man," it's easy to add your favorite sound bytes to your Mac. ..... 231

**Tip Sheet**
How to master Microsoft Word, PageMaker, Claris Resolve, aliases, the Finder, WordPerfect, MacroMaker, Nisus, and more. Plus: what can you do with a dead floppy disk? ..... 237

**Help Folder**
Is TrueType dead? Can a Classic II run with System 6? What's a PRAM? Why does Bob LeVitus have 5 megabytes of system software? Answers to these questions and more. ..... 243

## Reviews

**Magic**
Abracadabra! Creating animation and slide-show presentations that sizzle is a snap with Macromedia's powerful Magic. ..... 52

**PowerPlay for the Macintosh**
This new approach to visual data analysis is powerful but hardly child's play. ..... 54

**SwivelMan** and **ShowPlace/MacRenderMan**
By combining a 3-D modeling program with a 3-D rendering program, you can create photo-realistic images inexpensively and easily. ..... 58

**THINK C 5** and **CMaster**
The latest version of Symantec's premium programming language (with Jersey Scientific's add-on) adds an improved compiler, object-extension enhancements, and an expanded THINK Class Library. ..... 60

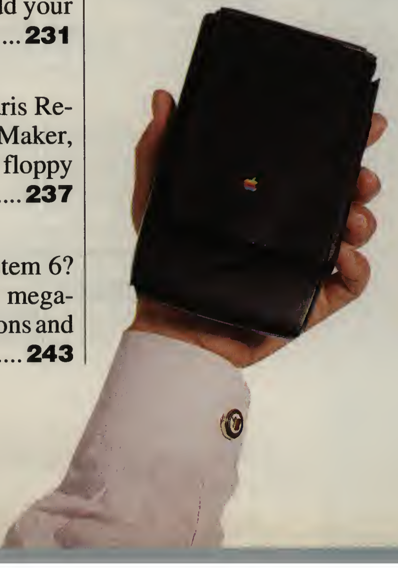
**In Control**
Planning projects and maintaining to-do lists becomes a breeze instead of a chore with this multidimensional outliner. ..... 61

**Ofoto**
Produce perfect pictures effortlessly with this Eddy Award-winning gray-scale-scanning software. ..... 72

**Video F/X**
It's one-stop shopping for aspiring filmmakers with Video F/X, a pricey but complete hardware/software package that simplifies the process of assembling all the components necessary for producing high-quality video. ..... 74

**CA-Cricket Draw III**
Sophisticated yet simple, this entry-level drawing package is a beginner's bargain. ..... 76

**Quick Clicks**
**Persuasion 2.1:** Add QuickTime and Windows compatibility to your presentations. **Easy Alarms:** Remember when. **Rise of the Dragon:** Futuristic L.A. adventure. **Retriever II:** Quick-and-dirty data retrieval. **4D Draw:** Add-on for object-oriented database artists. ..... 81



*"Apple's Newton technology is the most powerful technology to hit the consumer electronics market so far."* ...45

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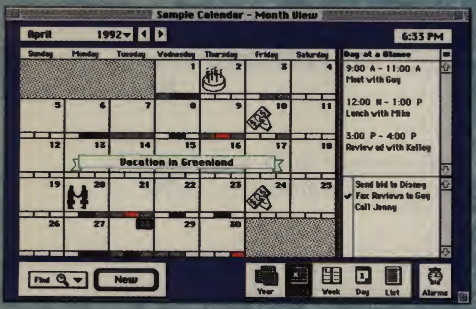

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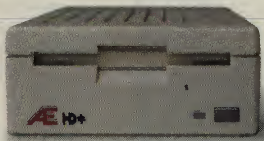

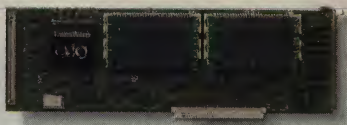

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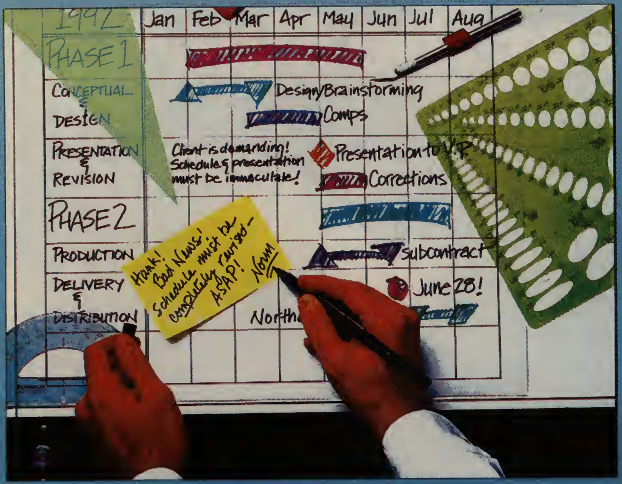

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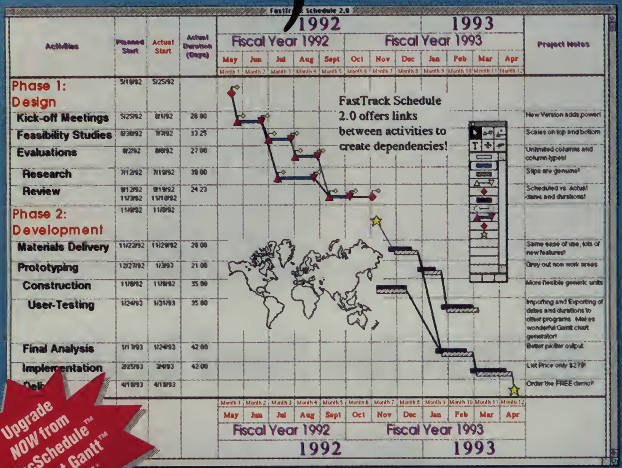

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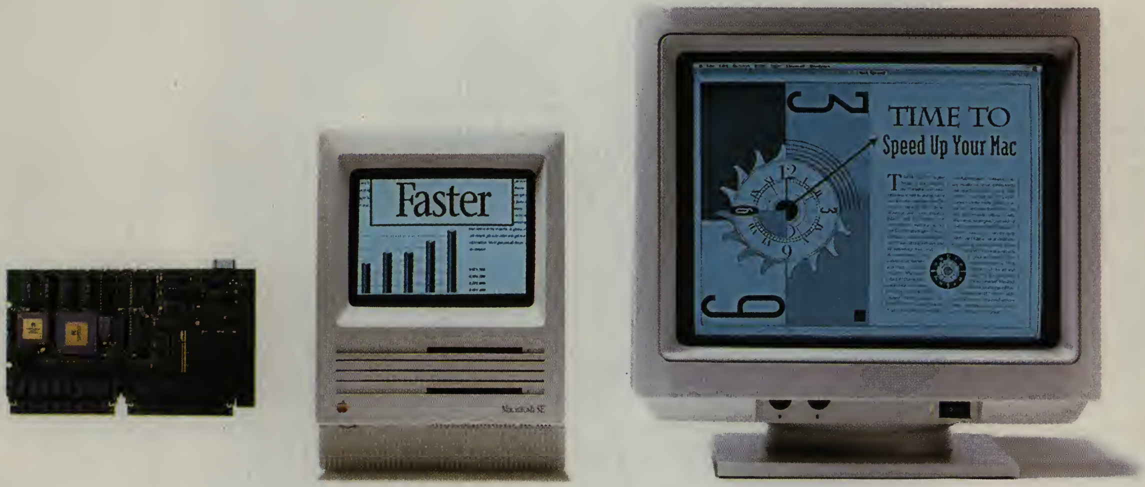
# The ins and outs of speeding up your SE.



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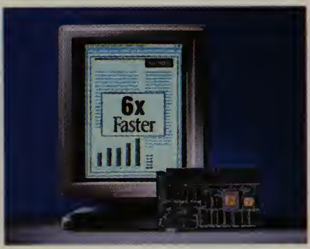

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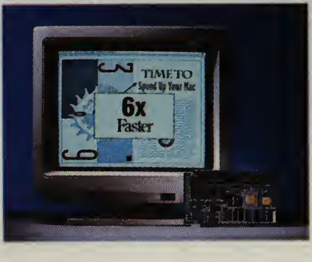

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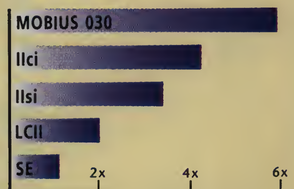

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Source: MacWorld 6/92

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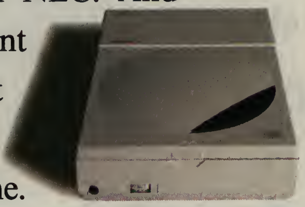

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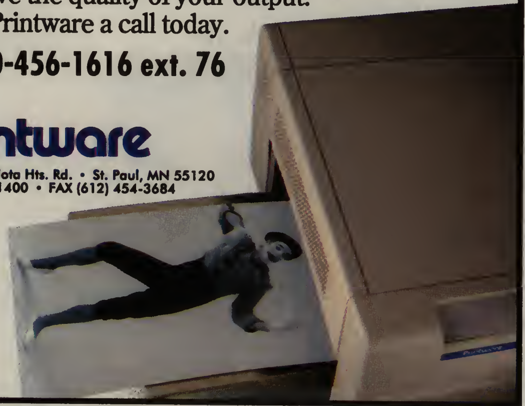

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**About** MacUser

# Labs: Science and Art

Product reviews are an art form with a healthy dose of science thrown in. The first comparison review of any computer product was published in a Ziff-Davis publication nearly 14 years ago. Since then Ziff-Davis, *MacUser's* parent company, has come a long way, refining both the art and the science. MacUser Labs was an early beacon in the sea of product testing, a state-of-the-art facility at a time when most product evaluation was still at the gee-whiz level.

MacUser Labs was one of the guiding models for building our corporate testing facility, ZD Labs. Less than a mile from *MacUser's* offices, ZD Labs is a 31,000-square-foot building designed expressly for testing computer hardware and software — everything from single-user applications to LANs with hundreds of users. This world-class testing facility houses a variety of computers, including PCs, Macs, file servers, minicomputers, and a small mainframe. ZD Labs is home to more than 100 Macs of every imaginable type and configuration, of which nearly half are wired into the 25 miles of cabling in the LAN lab. The other half are in constant service evaluating hardware, software, and peripherals.

**ZD Labs director Elizabeth Springer and test manager Andrew Eisner steer Ziff-Davis' new multimillion-dollar testing facility.**

In this issue, we present the first product review performed by ZD Labs for *MacUser:* "Perfection for Pennies: Autosynchronous Monitors," a comparison of autosync monitors. ZD Labs, in conjunction with MacUser Labs and *MacUser's* editorial staff, designed a series of rigorous tests, using such high-tech tools as a Microvision Superspot 100 System monitor analyzer and a Minolta Color Analyzer CA-100. ZD Labs performed the critical tests in a room specially designed for testing monitors: It has matte black walls, nonglare task lighting, and an optical table. The optical table is a huge slab of precision-milled aluminum floating on vibration-damping and self-leveling air columns to make certain the monitors remain perfectly motionless during testing. After performing our suite of tortuous tests, we probably knew more about some of these monitors than their manufacturers did.

Performance alone does not a great monitor make, so we also set up a jury whose members scrutinized the monitors individually and in comparison with each other and reported their personal impressions. The ZD Labs staff combined the objective data with the subjective evaluations, and then added an analysis of that information. The resulting thick lab report represents a cooperative effort between *MacUser* and ZD Labs, the first of many to come.

— Bill Machrone

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*Just when we thought we'd heard it all, Jim Martin, of Redmond, Washington, asks: "If I were to select my RAM disk and eject it, would the SIMMs pop out of my Mac? I'm afraid to try this . . . ."*

*Hey, Jim, you don't by chance work for Microsoft, do you? (Please say no.) By the way, did you hear the one about the programmer who got stuck in the shower indefinitely? He took the instructions on the shampoo bottle literally: "Lather. Rinse. Repeat."*

✉ *Write to Letters to the Editor, c/o* MacUser, *950 Tower Lane, 18th Floor, Foster City, CA 94404, or post your letter on the MacUser Forum of ZiffNet/Mac (also known as Zmac), our on-line service.*

*All letters become the property of* MacUser, *and we reserve the right to edit any letters we print. Please include a return address and a daytime phone number.*

### Start Making Sense

**Y**our May '92 issue contained two articles that get my Critical Thinking award. Both Jon Zilber (speech recognition) and Guy Kawasaki (multimedia) exhibit that all-too-rare ability to promote new technology while simultaneously describing its limitations.

Jon's torture test for speech recognition ("A Conversation with Casper," page 21) was hilarious. Here's another: Just feed a certain song from *Casablanca* into the magic box. You might get the following:

"Ewe muster ember disk,
Ah keester jester keys,
Ahs mile ease jester's mile,
Dee fund a mental sings apple eye,
Ass thyme ghost bye."

A. Bruce Jacobs
Fargo, ND

### The LC Turns II

**T**he Mac IIsi has a faster processor and a full-width bus, so it should perform more than 20 percent better than the Mac LC II on CPU-intensive tasks. Yet your speed comparisons in the May issue ("Personal Power," page 78) didn't show any substantial difference between the two machines.

Did your labs take into consideration the memory-access conflicts between the CPU and the built-in video on a IIsi when a program runs in the first megabyte of RAM? To obtain true performance on the IIsi, you must fill up the first megabyte of RAM so that the CPU doesn't have to share memory-access time with video. The easiest solution is to boost the disk cache to 512K or 768K. Performance will then increase 25 to 30 percent on CPU-intensive tasks.

The problem plagues the IIci as well but is less noticeable, because of the IIci's faster 25-megahertz CPU.

Warren DeLano
New Haven, CT

*You're right, and turning up the disk-cache setting does increase performance, because it forces applications into the second bank of RAM. However, this approach reduces the amount of RAM available for applications.*

*MacUser Labs simulates "typical" real-world use, so we use the manufacturer's recommended settings to test products. For example, the default disk cache for a IIci with 5 megabytes of RAM running under System 7 is 128K. Thus, the IIci and IIsi will always run a bit more slowly than their maximum capabilities in our tests. Of course, you can bypass the problem entirely by installing a video card.*

*The built-in video on the LCs and Quadras uses separate VRAM, so these machines don't suffer the same performance hits. — JP*

**Y**our article about the Mac LC II says, "As with the original LC, the maximum amount of RAM is 10 megabytes." It also says there are 4 megabytes soldered on and two empty SIMM

## Dear Mr. Sculley . . .

Readers flooded us with responses to our May question, which asked **whether or not you had switched to System 7.** Most holdouts recited the standard litany of complaints: System 7 is too slow, it takes too long to install, too many programs are incompatible, program upgrades and RAM cost too much.

Andrew B. King, of Ann Arbor, Michigan, is a frustrated speed demon. Even System 7 with Tune-Up is too poky, he laments. "I challenge Apple to make Finder 7.2 *at least* as fast as MultiFinder 6.0.7. It's rumored that Apple will 'tune up' System 7 yet again. Let's face it — the car doesn't need another tune-up, it needs a complete overhaul."

But J. Reviere, of Conroe, Texas, reports, "I've experienced none of the speed problems that others report. In fact, PageMaker 4.01 loads and works better — no more crashes — with System 7 than with any version of System 6!"

For Robert Gelber, of Auburn, California, time is the major issue. "The only hassle-free upgrade to System 7 comes with a new Mac. Upgrading for the rest of us is a major time sink — time to upgrade all your software and make decisions such as whether to use TrueType or stick with ATM." To minimize downtime, he suggests upgrading when opportunity knocks in the form of frequent system crashes or a hard-disk-drive disaster. "For those of us who use the Mac as a tool, a System 7 upgrade is like eating our vegetables. A system crash is just God's call to dinner."

Steven R. Jaynes, of Beaverton, Oregon, is another fan. "The usability is worth every dime of the $99 upgrade." Like many readers, however, he's irate at the cost of product upgrades. "Changing to System 7 almost broke the bank, because of all the compatibility upgrades and, more recently, those that take advantage of System 7-specific features. I've had endless bug-fix upgrades, some free, most not."

Jaynes and his fellow readers gave us the idea for this month's question.

### Speak Up:

**How much is fair to pay for an upgrade?**

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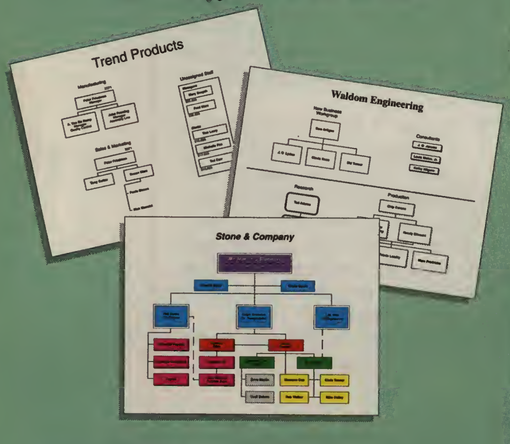

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CIRCLE 98 ON READER SERVICE CARD.

sockets. Because the sockets can be filled only with two SIMMs of equal size, it seems that either the maximum amount of RAM would be 8 megabytes (adding two 2-megabyte SIMMs) or 12 megabytes (two 4-megabyte SIMMs). Or am I missing something?

Also, how many NuBus slots does the Mac IIsi have? I can't find this information anywhere.

Jonathan E. Durkee
Sacramento, CA

*First, you're assuming that the Mac will use everything you stick into it. Wrong. You can add two 4-megabyte SIMMs to an LC II,* theoretically *giving you 12 megabytes of RAM, but the machine will recognize only 10 of those megabytes. The system just ignores the 2 extra megabytes. Go figure.*

*Second, the IIsi has one PDS slot. You can convert it to a NuBus slot with Apple's IIsi NuBus Adapter Card ($249). — RI*

### Cheap Thrills

**Y**our article "Chasing Rainbows: Accelerated-Video Cards" (May '92, Buyer's Guide page 16), was thorough, but there's an alternative to buying a 24-bit accelerated-video card outright. Buy a Radius PrecisionColor 8X or NEC MacFG 8X video card instead, and install 16 video-memory (VRAM) chips (256K x 4-bit versions).

With street prices of less than $800, these 8-bit cards are less than half the cost of their 24-bit siblings. Even after adding the 16 VRAM chips (about $200 via mail order), you'll come out $600 ahead! If you can get by with 16-bit color, purchase just 8 chips and save an additional $100. Worried about voiding the card's warranty? Wait until it expires.

Technical-support staff members at NEC and Radius have confirmed that extra VRAM chips are all that distinguish the 24-bit cards from the 8-bit cards. Unfortunately, the do-it-yourself upgrade doesn't work with SuperMac or RasterOps accelerated-video cards; they require additional proprietary chips.

Paul Stregevsky
Gaithersburg, MD

### Bigger Is Better

**"T**he Big Screen" (April '92, page 206) had some good tips for becoming more productive on large monitors. However, there was an error in the reference to PageMaker. The article says that in a two-monitor setup, PageMaker doesn't let you open a window larger than the startup monitor's screen. In fact, if you hold down the Command key while resizing a window, you can enlarge the window to fill either monitor or stretch it across both monitors.

Paul Sorrick
Software Quality Assurance
Aldus Corp.
Seattle, WA

**I**n "The Big Screen," Sharon Zardetto Aker says, "the Monitors control panel also lets you define the spatial relationship between two monitors." Does she mean that I can separate two monitors by some "electrical" distance between them? If so, how? The illustration leads me to believe that this is what she meant!

Kris Bueltmann
via ZiffNet/Mac

*The Monitors control panel lets you define the virtual* boundaries *between two monitors, not their distance. You arrange the icons in the Monitors window to indicate which monitor is on the left side of your setup, for example, and where their borders will be contiguous (if the monitors are different sizes). The artwork was misleading: You can't indicate a physical or electrical separation between two monitors. — JB*

### Ready Reference

**W**hy don't you have an easy way to reference your articles? I would gladly pay for a quarterly HyperCard stack.

Timothy R. Bond
New York, NY

*Ask, and ye shall receive. Our free HyperCard index, updated quarterly, is available on ZiffNet/Mac,* MacUser's *on-line service. Look for the filename MUINDX.SEA in Library 7 (Reference) of the Download & Support Forum. If you'd like a HyperCard version of our MiniFinders, which appear in this issue, look for MUMINI.SEA in Library 7. (Type GOZMC:DOWNTECH on CompuServe to reach the forum.) — BT*

### Notebook Nagging

**H**ere I am in an airplane, using my newly acquired Outbound Notebook 2030, which I bought partly because of your review (February '92, page 46). Reveling in my glory, I casually watch as the gentleman next to me produces a PC notebook, which I discover has a full set of function keys and a built-in modem *and* costs almost a thousand dollars less than my

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✓ Networkability

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## LETTERS

Macintosh-compatible model. Wilt.

Within the closed Mac environment, the Outbound Notebook is a great buy, even at $3,600, and certainly the Mac PowerBooks are a welcome (albeit long overdue) addition to the Apple family. If you compare the Mac or Outbound notebooks with an equivalent PC product, however, your exhilaration plummets. The feeling resembles the one you get after your first hard-disk crash.

Why don't Mac notebooks have user options comparable to those of their PC cousins? No function keys? No built-in modem (except in the case of the PowerBook 170)? And a higher price?

Sorry, it makes my SIMMs sizzle.

Steven Shmerler
Burbank, CA

### Tales from the Script

**G**ee, batch files for the Macintosh. What a wonderful idea.

Michael Swaine may prefer to learn obscure technonerd words and phrases ("Control Freaks," May '92, page 29) and then labor for hours, patching them together into a never fully debugged mini-application that sometimes but not always works as it should. I don't. Most human beings don't.

Frontier will find a small market among folks who love technology and are easily bored by ordinary, useful, practical things. Remember when the Mac was the computer for the rest of us? It's not anymore. Scripts and script lovers will drive it even farther away from the practical tool it used to be.

Mike Bradley
Oakland, CA

**A**fter reading the May columns by Michael Swaine and Steven Bobker ("The Best for the Brightest," page 205), I've become intrigued with AppleScript. The possibility of using a scripting language to enhance Apple events and personalize applications has roused my imagination.

One implication of a universal scripting language would be an end to the diversity of current scripting languages. HyperCard, Frontier, SuperCard, WordPerfect, and many other applications now have their own distinct forms of user scripting. A single language would let users write scripts for many different applications. A consistent interface would free users to be creative and productive — one of the original goals of the Mac interface.

I do have a couple of questions: What is the status of AppleScript? What, if any, relationship will it have with HyperTalk?

Mark Weedman
Johnson City, TN

*AppleScript, Apple's universal scripting system, should be released later this year. HyperCard and other existing applications will have to be rewritten to work with it. — MS*

### Shell-Shocked

**Y**our comparison of Easy4D and 4thRight! Professional (February '92, page 60) was so poorly presented and so slanted that we question the impartiality of the reviewer. Louis Benjamin did not consider the audience for which each of these 4D shells is best suited, and in fact, it's obvious that he failed to use 4thRight! Professional before writing the article. There was no head-to-head comparison of the results of building an application with each product. He goes out of his way to point out things he considers to be drawbacks in 4thRight! but doesn't mention similar "problems" with Easy4D.

Your reviewer has no concept of the needs of most customers who need a 4D development shell. To compound this problem, he failed to talk to any of our customers. He did not call to clarify anything, although he vigorously disparages everything about our product. Nor did he bother to find out that there are three versions of the product — 4thRight! Lite, 4thRight!, and 4thRight! Professional — to accommodate the wide variety of customer needs.

Many of our customers did this same product comparison and came to a much different conclusion. Most 4thRight! users are corporate, scientific, or defense employees who need robust compiled applications. Our selection of tools and resources saves them the hundreds of hours that would be required to build the same applications from scratch, as would be required with Easy4D.

Buddy Page
President
Digital Concepts, Inc.
Portland, OR

*Although my reviews of Easy4D and 4thRight! Professional appeared together, they were not intended as a head-to-head comparison. I created simple databases with both products, thoroughly read the documentation, and opened the source code. Because of space limitations, I couldn't detail the reasons behind all my*

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*conclusions. For example, 4thRIGHT! has a fundamentally flawed multiuser routine; this aspect alone had a significant chilling effect on my review.*

*Mr. Page and I simply have a basic difference of opinion on how and why shells are used. My experience with corporate as well as free-lance developers has been that they want prewritten code but don't want the shell to "get in their way." Too many of 4thRight! Professional's procedures do essentially the same thing, and the documentation does a poor job of explaining the product's underlying philosophy and how to take advantage of it.*

*Mr. Page's comments lead me to believe that I would probably have a more favorable opinion of 4thRight! and 4thRight! Lite. — LB*

Your review of 4D development shells omitted the Generation Four Application Development Shell (G4 Shell). G4 Shell is the oldest, smallest, and simplest shell on the market. Its documentation not only describes *how* to implement a feature but also the background and methodology *behind* the feature. This gives new 4D developers enough information to expand and enhance G4 Shell's features.

G4 Shell is part of a suite of Generation Four products that provides a complete 4D development solution. For example, the User and Administrator References allow application developers to rapidly produce high-quality documentation for their clients. The G4 PowerDisk provides information and examples on beginning, intermediate, and advanced 4D programming techniques; database design; and practice-management tools.

John T. Zoltai
Generation Four, Inc.
Los Alamos, NM

### The "M" Word

I normally agree with Guy Kawasaki's writings, but he's way off base in "Let the QuickTimes Roll" (May '92, page 25).

From the user's standpoint, the computer is not a tool. Only when combined with applications that address real needs does it become a tool. Ease of use plays a role in making a tool more usable, but it doesn't determine whether something is, in fact, a tool.

As for the role of multimedia, it's easy to look at a hardware or software innovation and say, "I didn't know I needed that." However, successful adoption of a technology is virtually always preceded by a vendor's clear understanding of user requirements. The challenge for users (and managers) is to evaluate and adopt promising technologies when a successful match between need and functionality exists.

As a technology (it isn't a tool), multimedia has considerable promise as a way to integrate and synthesize vast quantities of information: One has only to consider the areas of teaching and collaborative learning to understand its potential impact. Viewing multimedia as simply a cool way to make presentations narrowcasts its promise.

Richard A. Whitney
Anchorage, AL

Mr. Kawasaki is missing an important point: When used selectively, multimedia can add the zest that most presentations need to keep an audience interested.

My accounting firm deals primarily with government agencies. Needless to say, our business isn't sexy or glamorous. So instead of presenting statistics and in-depth information with overhead transparencies of bulleted text, we use multimedia techniques to display data in a "fun" forum. That way, our clients are relaxed and want to see more about the product or service.

Our video usage is limited to educational materials, but movement on-screen sure keeps the audience's attention. Perhaps animation is so appealing because the kid in all of us likes to escape to cartoonland once in a while. Animation keeps even the most conservative starched collar interested and stimulated by the most mundane stack of statistics.

Julia A. Delligatti
Washington, DC

## Clarifications

The phone number listed in our review of Vellum 3D (June '92, page 83) was the fax number. Ashlar's voice number is 408-746-1800.

The current incarnation of Taste, the word-processing program from DeltaPoint, is version 1.02c ("Key Words," June '92, Buyer's Guide page 28).

In "Blasting Off: CPU Accelerators" (June '92, page 166), the price shown for the Radius Rocket in Table 1 on page 184 was for the Rocket 25i, which was not tested. The correct price for the test configuration is $1,999.

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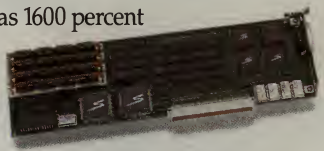

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**JON ZILBER**

# Blanket Statements

**There are more than 1,000 product reviews in this issue of *MacUser* — and behind each one hangs a tale. But sometimes the tale ends up wagging the dog.**

The scene is 1913, Whewell's Court at Cambridge University, the living quarters of Srinivasa Ramanujan, a brilliant young student of mathematics from India. Ramanujan, one of the giant intellects of the century, is entertaining a fellow countryman, Prasantha Chandra Mahalanobis, who, like Ramanujan, has had difficulty adapting to the cold English winters.

The visitor asks if Ramanujan is warm at night. Ramanujan responds that he's so cold that he must sleep with his overcoat on.

"Figuring his friend hadn't enough blankets, Mahalanobis stepped back into the little sleeping alcove on the other side of the fireplace from the sitting room. The bedspread was loose, as if Ramanujan had just gotten up. Yet the blankets lay perfectly undisturbed, tucked neatly under the mattress.

"Yes, Ramanujan had enough blankets; he just didn't know what to *do* with them. Gently, patiently, Mahalanobis showed him how you peeled them back, made a little hollow for yourself, slipped inside . . . ."

This little tale from the fascinating biography of Ramanujan, *The Man Who Knew Infinity,* by Robert Kanigel, offers a charming variation on the familiar ailment of not seeing the forest for the trees. But whether it's missing the forests, misusing the blankets, or not realizing that Murphy Brown is a fictional character, there's nothing more embarrassing than missing the obvious.

Well . . . we goofed.

The scene is earlier this year, in the working quarters of MacUser Labs, where a team of brilliant young students of the Macintosh are hard at work benchmarking relational-database programs.

Months of development, countless hours of heated discussion, weeks of testing, and mountains of data later, we assembled the data for the manuscript that appeared in our June issue as "Database Strategies: Relational Databases" (Buyer's Guide page 60).

Somehow along the way, we forgot to figure out how to get under the blankets.

When the article appeared, letters flooded in and on-line debates started raging. Our conclusions just didn't ring true, and the phone just didn't stop ringing.

Beneath every review or lab report we print, there's an iceberg of information and analysis you never see. There are months of advance work that lead up to the review. But there's also an extensive postreview process that starts after the issue hits the stand — or the fan, as the case may be.

Hardly a review appears that someone doesn't dispute. Few readers like to see their product of choice criticized, and the maker of that product feels even more strongly.

Even when we get only a few complaints, we check them out. Usually they end up being a difference over how the ideal interface should work, a semantic debate over specific word choices, or an agreement to disagree over which is more important: ease of use, a robust feature set, the quality of tech support, or user-friendly pricing.

Occasionally, the trickle of complaints turns into an avalanche. In the case of the relational-database programs, it took a bit more digging than usual, but we finally found the cause of most of the disagreements: a mislabeled floppy disk. Our tests for one of the database programs had included an almost-final benchmark test instead of the right one. Although the two versions differed by only a single line of code, it was an important line of code.

That little version mix-up had made a significant difference in the performance results that so baffled so many readers. But the process of digging deeper into our own benchmarking process also brought to the surface several more-fundamental issues — issues that pertain to all product categories, not just database programs.

## Test Gauge

Which is more important, speed or ease of use? Or, as in the case of database programs, how do you weigh performance and ease in setting things up against performance and ease of retrieving information?

Consider the issue of synthetic benchmark tests versus real-world tests. Which is the better tool for testing a product: a lab-based torture test designed to stress a product until you find its breaking point or a test that reflects the typical ways real users actually work with the product?

Synthetic tests have several points in their favor: They're reproducible and unequivocal, and they provide information most users can't discover on their own. Real-world tests, on the other hand, offer results that are more immediately relevant and understandable.

Evaluating a product is a bit like thinking about entering into a personal relationship. It's important to know what it's going to be like on a day-to-day basis, but you also need to know the worst-case scenario: What it's going to be like when the going gets rough?

There is no easy answer, except to provide as much information in all our evaluations as space and time permit. Which brings us to MiniFinders.

MiniFinders is *MacUser*'s database of product reviews. Each review includes a brief summary of the product's pros and cons and a one-to-five-mouse rating that indicates how the product fared on *MacUser*'s rodent scale. This month's installment of more than 1,000 MiniFinders reviews is our biggest and most comprehensive ever, which means that it's the most useful — and most dangerous — buyer's guide of Mac products ever.

Why dangerous? The name *MiniFinders* is borrowed from a laughably obsolete junior version of the Macintosh Finder. We have to take special precautions to make sure our own MiniFinders reviews don't become just as obsolete.

The Mac product universe is exponentially more complex than it was eight years ago when we published MiniFinders in our premier issue. And that universe keeps changing and evolving faster than ever.

This means that yesterday's five-mouser is today's ho-hum. Last year's highflier is today's has-been. The needs of today's Mac users are vastly different now from what they were last year.

We've made every effort to ensure that the reviews and ratings in MiniFinders keep up with the times. When we add new MiniFinders reviews to the database, we review and rerate the products in the applicable categories. And as the state of the art advances, our rating scale gets tougher and tougher.

But MiniFinders still tells only a fraction of the story. You owe it to yourself to get the full picture. In this month's MiniFinders, you'll find something new: A business-reply postcard you can use to request current information on any product listed in MiniFinders.

But don't stop there. We've also made it easy for you to retrieve the text of the original full-length reviews. The issue in which the review originally appeared is listed at the end of each MiniFinder review, and you can instantly access back issues of *MacUser* through ZiffNet/Mac, our CompuServe-based on-line service. (Sign-up information appears on page 6 of this issue. See the Zmac page in the Power Tools section to find out how to get a HyperCard stack of the MiniFinder database for easier searching.)

As for relational-database programs, we're reevaluating the products as well as our evaluation process. Thanks to your input, you'll be getting a more robust, more meaningful picture next time around.

And we won't get caught on top of the blankets. ⌘

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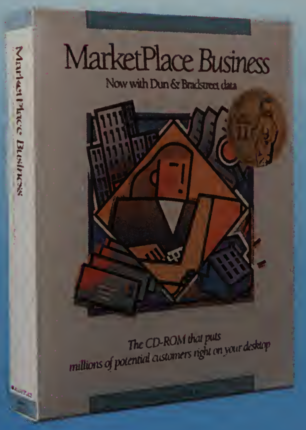
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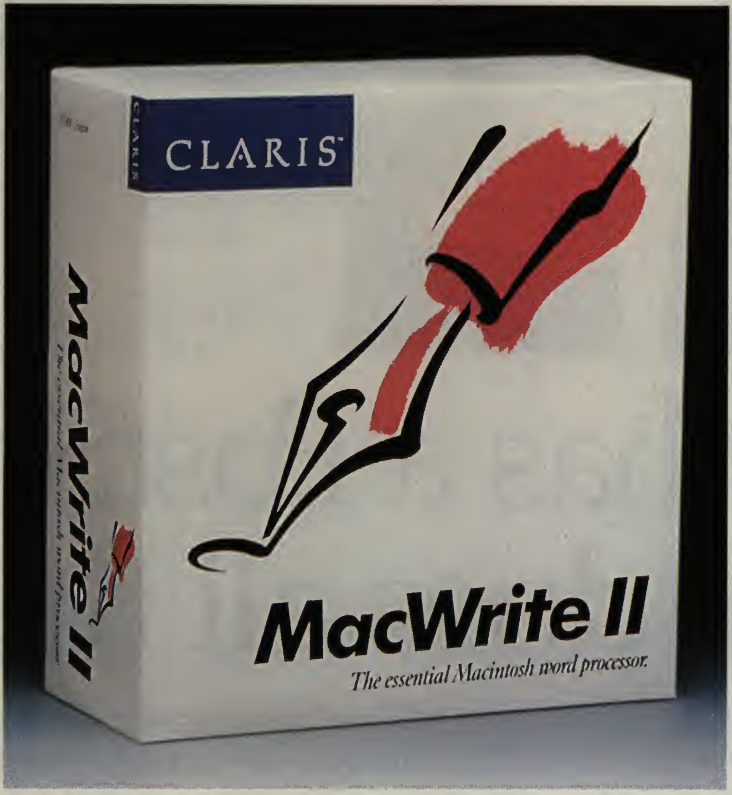

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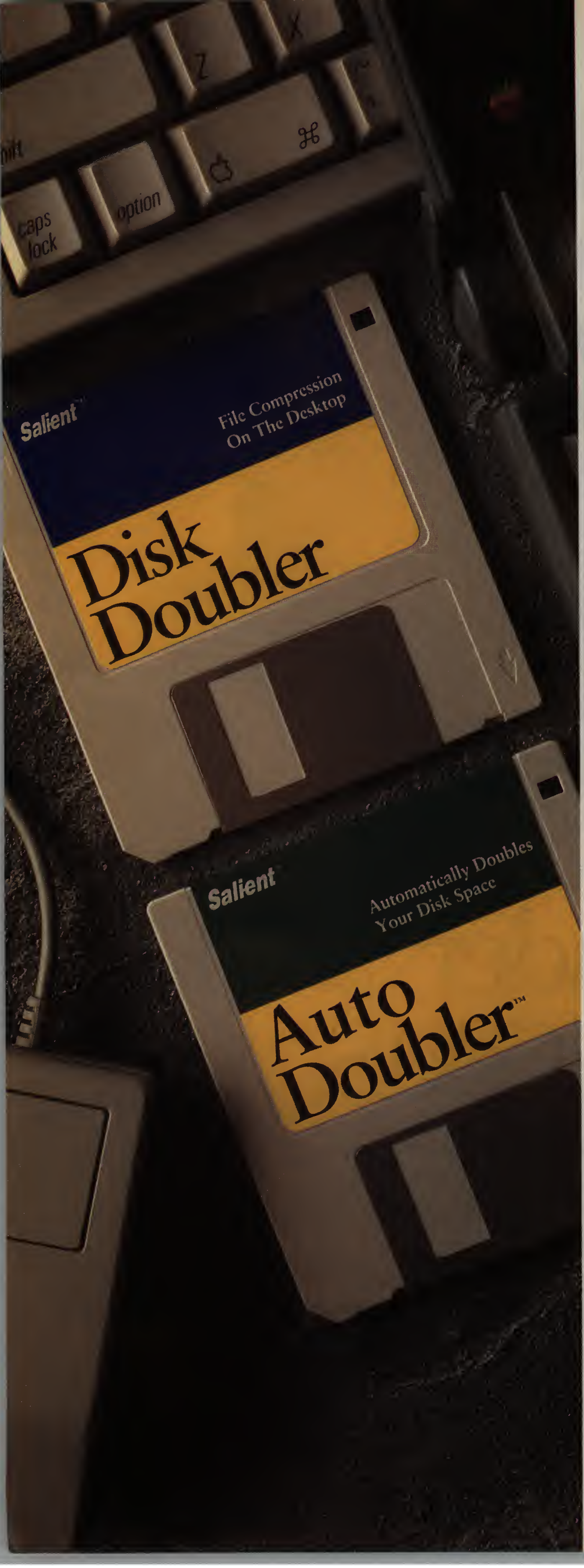
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**MICHAEL SWAINE**

# Words and Pictures

**Hold that word processor! Do words still wield any power for the MTV generation? Or does "Gilligan's Island" mean more than *Hamlet?***

Uh-oh. Not another column that asks whether multimedia on the Mac is good for anything.

Not quite. Instead, I've been wondering about the conventional wisdom that "a picture is worth a thousand words" and trying to figure out what the real relationship between pictures and words might be.

I've never accepted that a picture is worth a thousand words. It's a pretty fishy claim. Even if we overlook the question of what coin we are using to measure worth, we can challenge it: It sort of depends on the picture, doesn't it? And on the words.

Then too, if a picture is worth a thousand words, how about a movie or a television show, which is made up of lots of pictures? The arithmetic is straightforward. One episode of "Gilligan's Island" = *King Lear* + *Hamlet*. That's without the commercials; otherwise you have to throw in the sonnets.

But maybe that's not the best way to go about interpreting the claim. If worth is measured in the coin of memory or disk space, then the formula can be made meaningful and even precise. A byte-value version of the conventional wisdom might read "a (moderately compressed 128-x-128-pixel 8-bit-color QuickTime) picture is worth a thousand (plain-text standard-English) words."

That's actually a useful bit of information, but it's not what the conventional wisdom really means. And what it means, however much one may differ on the actual valuation, is important. It really matters what a picture (or a movie or a voice annotation or a voice message) is worth. More and more, hardware and software products are going to differentiate themselves by their ability to facilitate the capturing and storing and presenting of speech and pictures, moving and still. Purchase decisions will depend on assessments of the relative worth of written words versus a picture (or movie or voice annotation or voice message). And although we do need some simple disk-space formulas such as the one above, what we really want to compare is the worth of the content of the media. We want to know whether digitized pictures and movies and speech are worth the cost of the hardware and the software and the disk space required to manage them. We want to know how much worth can be put into a picture, as compared with text.

Unfortunately, this comparison can't be made, because the visual and print media don't express the same kinds of things; their contents are incommensurable. A communication theorist could probably say just exactly what sort of content each of the different media expresses best. Presumably that's what Marshall McLuhan was up to in his *Understanding Media* and his other works. I can't say, because I never really understood *Understanding Media*. It seemed as if its content was expressed in the wrong medium.

Shaken though I may be after confessing my McLuhan illiteracy, I think I still have my grasp on the obvious. And isn't it obvious that we have to use words, not pictures, when we want to express ideas? You've never seen a picture of "a picture is worth a thousand words." It takes words to express that idea, or any idea. A particularly powerful picture might be presented as evidence, but never as an expression, of an idea.

The conventional wisdom is wrong. A picture is not worth a thousand words. It's not necessarily better to show than to tell. And QuickTime notwithstanding, video will never replace the book.

### The Power of the Picture

I'll grant that it is powerful.

A portion of this column was written to the accompaniment of background video. As I typed these words into a PowerBook, I was seeing in the corner of my eye images of videotaped violence. On CNN that morning, Los Angeles was not a pretty picture. Dozens of people were dead and hundreds injured after 48 hours of rioting in Los Angeles and other American cities — the national news mentioned San Francisco, Atlanta, Seattle, Las Vegas, Tampa, San Diego, Madison, Beloit, Omaha, Minneapolis, San Jose, and New York, but I knew of many other, smaller cities where the damage was being assessed that morning — in a terrible chain of events that began when a passerby videotaped the beating of motorist Rodney King by four Los Angeles police officers.

The production values of the Rodney King video are not impressive, but it is more compelling than the larger-budget moving pictures for which Los Angeles is known. It pushes a brutal truth in our faces. Watching it made me angry, and watching what went on in the streets of L.A. in the wake of the trial and its verdict was like being hit in the gut.

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an emotional level, and to do so with very little intellectual filtering. We remember the striking, emotional visual images. We remember that student facing down the tank in Tienanmen Square. Neil Armstrong's "one small step." The Zapruder film of the assassination of John Kennedy and the shooting of Lee Harvey Oswald in the basement of the Dallas police station. Or the less violent and more personal: our parents or children mugging for the camera, laughing, talking. Video is visceral.

Virtual Valerie notwithstanding, there's not a whole lot of visceral video on the Mac yet. But it's early: Let Apple sell half a million CD-ROM drives, and that may change.

Pictures and video have some other virtues, of course. Pictures are good at communicating spatial relationships, for example. Flowcharts and Gantt charts and org charts do this, as do architects' plans, engineers' blueprints, and drawings of crime scenes. Even a spreadsheet is a kind of picture, although its two dimensions represent conceptual, rather than physical, space.

Moving pictures add a dimension, the dimension of time. They can represent real time, compressed or expanded time, or some other dimension entirely. Seeing the clouds roll by on the weather map is a good way to get an understanding of the movement of the storm, but rotating a 3-D molecular model in space can give you a sense of its three-dimensional structure — a use of motion that has nothing to do with time.

And there are things the picture can communicate that we don't know how to articulate — such as the things we read in facial expressions.

But the real power of the picture is in stirring our emotions.

### The Power of the Word

So suppose we take power as the coin we use to measure worth. Which is more powerful, a picture or a thousand words? *¿Quién es más macho?*

I am not unbiased in this matter; as a professional writer, I'm committed to the word. But it seems clear that the written or spoken word, wielded by an expert, is more powerful than any visual image. A picture can only stir your emotions, whereas words must touch your mind. I maintain that the mind touch is more powerful than the emotion stir, because if you are able to touch people's thoughts, you can influence or manipulate what they think they know of the world. You can even manipulate what they think they see in pictures and videos.

**Virtual Valerie notwithstanding, there's not a lot of visceral video on the Mac yet. But it's early: Let Apple sell half a million CD-ROM drives, and that may change.**

I cite as evidence the verdict in the Rodney King trial. Reasonable people can differ, and although I haven't run into a reasonable person yet who thought the verdict was correct, there may be such a person. To such a person, I acknowledge that the following is only my opinion. My opinion, then, is that this was a case in which words won. A team of skillful lawyers was able to convince 12 jurors that they didn't see what they saw. Whether or not the jurors were predisposed to ignore the evidence of their senses, they needed permission to do so, and apparently they got it.

Video can only put something before our eyes. It can't make us believe our eyes. And our capacity for denial and selective blindness is enormous.

This is a distressing example of the power of words. There are some more-mundane, less disheartening examples. Anyone who has ever given a presentation with any kind of visual aids knows why they are called visual aids. The slides just won't make the speech for you: The speaker has to tell the story, put across the ideas. The slides — or projected transparencies or PowerPoint presentation frames — only aid. When the speaker says that the following slide demonstrates such and such, we as the audience tend to accept the assertion uncritically or we work to see such and such in the slide. Pictures and words complement each other, and where there are ideas to communicate, pictures should *support* the words. They need to be the right words, of course, and finding them is not always easy.

The challenge in using words and pictures together is to use the pictures to make people feel what the words say and to use the words to make people see what is before their eyes.

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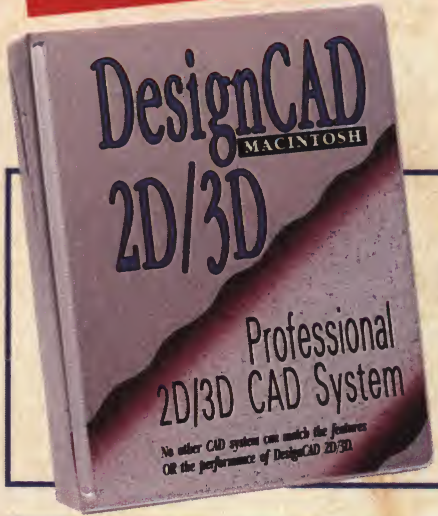
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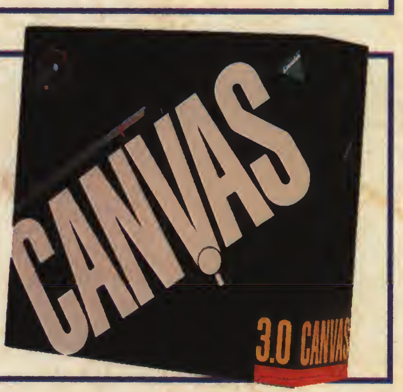

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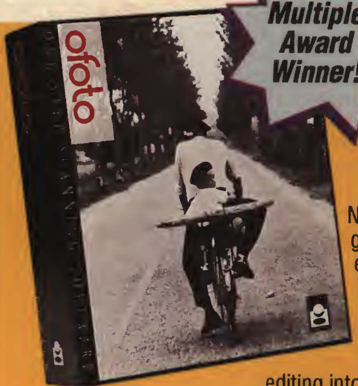
The latest in professional, yet easy-to-use painting tools... at an incredible price. Expert Color Paint is a fully-equipped desktop art studio that gives you true 32-bit color (that's 16.9 million colors and grayscale!), anti-aliasing, fully customized tools, virtual memory, multiple undo's and System 7 support. Want more? Included is a free clip art disk (a $24.95 value). Softsync, Inc. #00954 ❼ ✓



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### ofoto

**$279**

Now professional-quality gray scale scanning is as easy as a click of a button. With Autoscan, ofoto reduces the time-consuming process of scanning, rescanning and editing into one simple step, giving you a crisp, accurate reproduction of your original image on the very first scan. It leaves you more time to exercise your creativity. Light Source #00657 ❼ ✓

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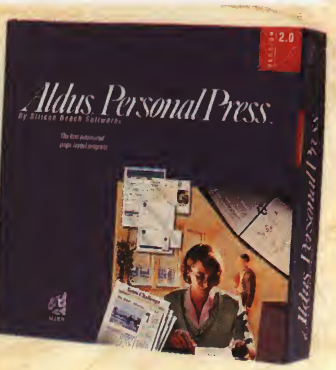
### Aldus Personal Press

**$98**

Do you want powerful desktop publishing for a minimum investment of your time and money? Aldus Personal Press is easy, effective and has all the features you need. It includes page layout, full-featured word processor and powerful graphics capabilities–everything to produce simple flyers to slick newsletters and brochures. Aldus Corp. #04799 ❼ ✓



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**$498**

### 14" Color Display Monitor

Not only is the Generation Systems 14" Color Display priced far less than Apple's standard 12" monitor, it also offers 56% more work space. The 14" Color Display can be used with any Mac model with an appropriate video card, and is specifically designed for use with the built-in color capabilities of the LC, IIsi, IIci and Quadras. It features 640x480 resolution, a razor sharp dot pitch of .31mm, brilliant, saturated colors, a tilt/swivel base, front panel controls and an anti-glare screen. Covered by the manufacturer's one-year warranty.
Generation Systems #04588

### SuperMatch 17" MultiMode Color Display

**$1058** This 17" color display includes multiple modes, with support for 1024x768 full-page-plus, 832x624 WYSIWYG, and 640x480 magnified view resolutions. It also features an accurate 6500 Kelvin white point and it's "plug-and-play" compatible with the motherboard graphics of the Macintosh Quadra.
SuperMac Technology #05123

**$428**

### VideoSpigot

The VideoSpigot Digital Video Frame Grabber is a revolutionary new digital-video hardware/software system for making QuickTime movies with all NuBus-equipped Mac systems. This amazing system captures and digitizes NTSC/PAL video camera input at rates up to 30 frames per second with 24-bit color! Unlike other video products, the VideoSpigot turns video into fully-digitized data so you can store it on an ordinary hard disk or optical cartridge. It integrates all the functions you need to record, trim, preview, store and play QuickTime video.
SuperMac Technology #00613 ❼

## MONITORS & VIDEO

***SuperMac***

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| 00614 | Video Spigot SI | 444 | ❼ |
| 05110 | Video Spigot LC | 444 | ❼ |
| 05111 | Video Spigot Pro NuBus | 1458 | ❼ |
| 05112 | Video Spigot Pro Si | 1364 | ❼ |
| 05113 | Spigot + Sound | 820 | ❼ |
| 05114 | Spigot + Sound Pro | 1728 | ❼ |
| 05115 | Spectrum 8 LC | 534 | ❼ |
| 05116 | Spectrum 8 Series III | 534 | ❼ |
| 05117 | Spectrum/24 Series III | 1524 | ❼ |
| 05118 | Spectrum 8/24 PDQ Si | 898 | ❼ |
| 05119 | Spectrum 8/24 PDQ | 898 | ❼ |
| 05120 | Spectrum /24 Accelerator | 454 | ❼ |
| 05121 | Spectrum/24 | 1094 | ❼ |
| 05122 | SuperMac Calibrator | 544 | ❼ |
| 05123 | 17" Multimode Color Monitor | 1058 | ❼ |
| 05127 | 20" Color Display | 1798 | ❼ |
| 05125 | 20" Dual-Mode Trinitron | 2698 | ❼ |

***NEC***

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| 07143 | Multisync 4FG 15" Clr Monitor | 778 | ❼ |
| 07144 | Multisync 3FGX 15" Clr Monitor | 658 | ❼ |
| 07182 | Multisync 6FG 21" Clr Monitor | 2898 | ❼ |
| 07399 | Multisync 5FG 17" Clr Monitor | 1398 | ❼ |

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| 04803 | Precision Color 8X | 798 | ❼ |
| 04804 | Precision Color 24X | 1798 | ❼ |
| 04205 | Pivot Display Monochrome | 764 | ❼ |
| 04206 | Radius Pivot Display Color | 1298 | ❼ |
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| 05383 | Radius Color Pivot/LE | 1078 | ❼ |
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| 00708 | RasterOps 24Mx | 1244 | ❼ |
| 00709 | RasterOps 24MxQ | 1244 | ❼ |
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| 04910 | RasterOps 8XL Video Board | 484 | ❼ |
| 02627 | Colorboard 264/30 24Bit | 658 | ❼ |
| 03379 | Colorboard 208 24Bit Upgrade | 280 | ❼ |
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If you want access to more fonts, DAs, FKeys and sounds than your system can hold, you need MasterJuggler. With MasterJuggler you can easily use your files containing fonts, DAs and more, even if they are being shared across most networks. System 7.0 compatible. ALSoft, Inc. #04543 ❼ ✓

### HandOff II

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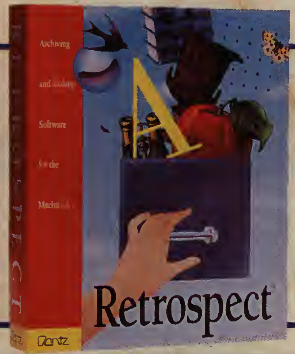
Manage and access your files faster and easier with Hand-Off II. This indispensable utility turns the System 7 Apple menu into a multi-level hierarchy for launching, opening and browsing folders and files. You get pop-up menus, automatic compatible application substitution, document briefcases and more. Connectix #04889



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Retrospect provides automatic, unattended backup to any tape, cartridge or optical device. Set it up once, and the built-in calendar backs you up again and again. It also saves hard disk space by archiving seldom-used files to the backup media for future retrieval. Get Retrospect Remote to bring the power of Retrospect to an entire AppleTalk network. Dantz #02586 ❼ ✓

### Now Utilities 3.1

WINNER ½

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According to MacUser, "Now Utilities is a must-have for experienced users and novice users alike." Included in the collection are: Super Boomerang, rated as the best open & save dialog box enhancer; StartUp Manager, a powerful extension manager; and WYS/WYG Menus, which group font families by typeface. Plus you get: NowSave, Screen Locker, AlarmsClock, Profiler, MultiMaster, DeskPicture, and NowMenus! Now Software #04191 ❼ ✓

### Blue Parrot

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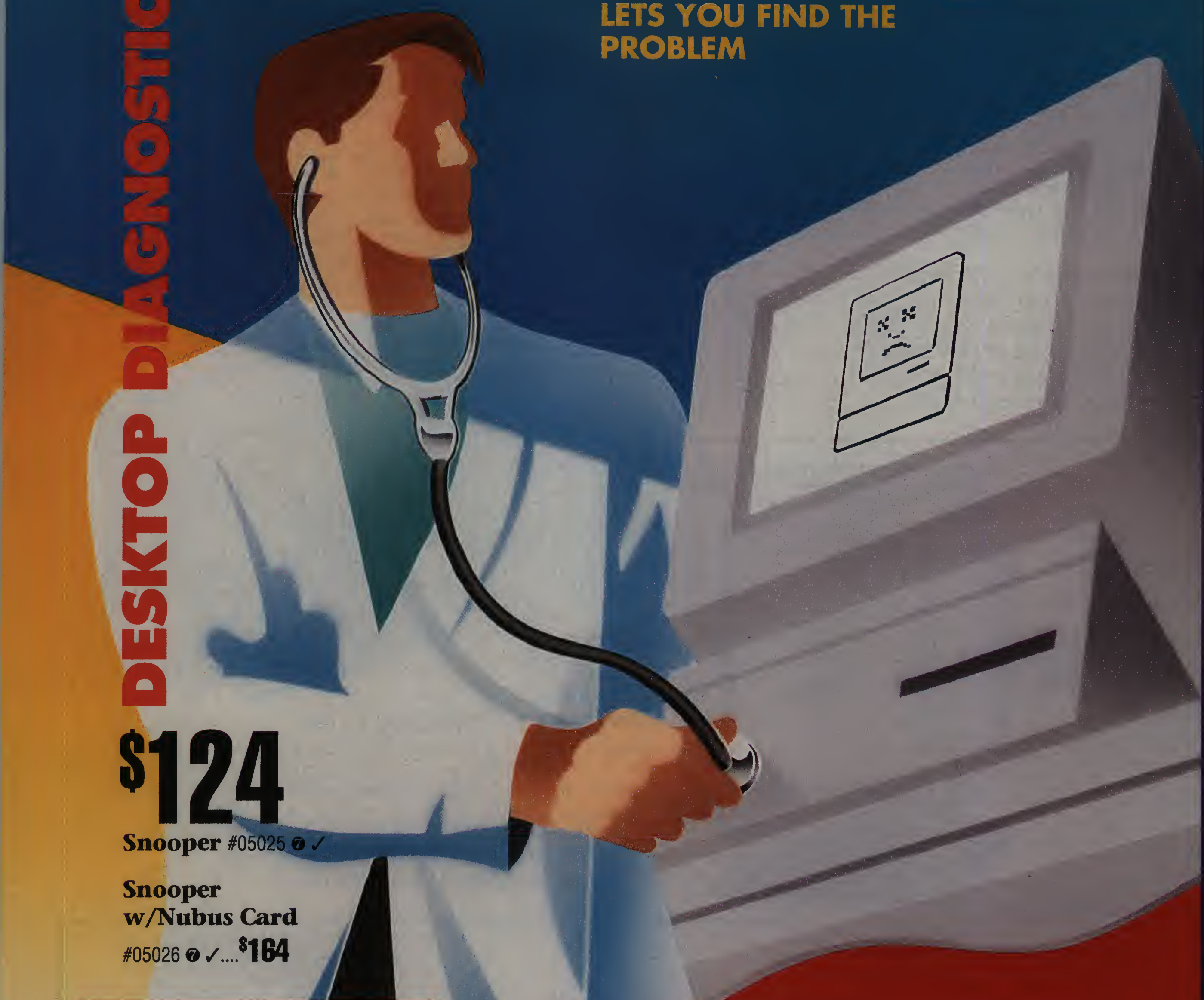

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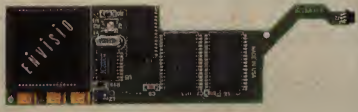

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The EN/SC 10Base-T PB is the perfect external SCSI adapter for connecting slotless Macs—such as the new PowerBook or Mac Classic—to Ethernet networks via 10Base-T media. All Asante products are fully compatible with the IEEE specifications for Ethernet, and support all popular network operating systems. Asante #00847

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**$798**

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| **Targus Universal PowerBook Case** #07454 | $74 |

### NoteBook Keypad

**$104**

The Kensington NoteBook KeyPad gives you the flexibility and features of a full keyboard when you use your Macintosh PowerBook. Its compact, sleek design is perfect for travel with your PowerBook or any other ADB device. This module gives you function and arrow key control, as well as the standard mathematical and number keys found on an extended keyboard. Kensington #00638

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"Memory Effect" is the loss of battery capacity due to using a battery over only a portion of its storage range. Since the PowerBook automatically shuts down on low battery, the battery is never used over its whole range, causing it to develop a memory effect. The Lind External Full-Cycle Charger not only charges the PowerBook 140/170 ni-cad battery but optimizes full performance and long life by giving you the option to discharge the battery completely before the charging cycle begins. Lind Electronic Design #05354 ✓

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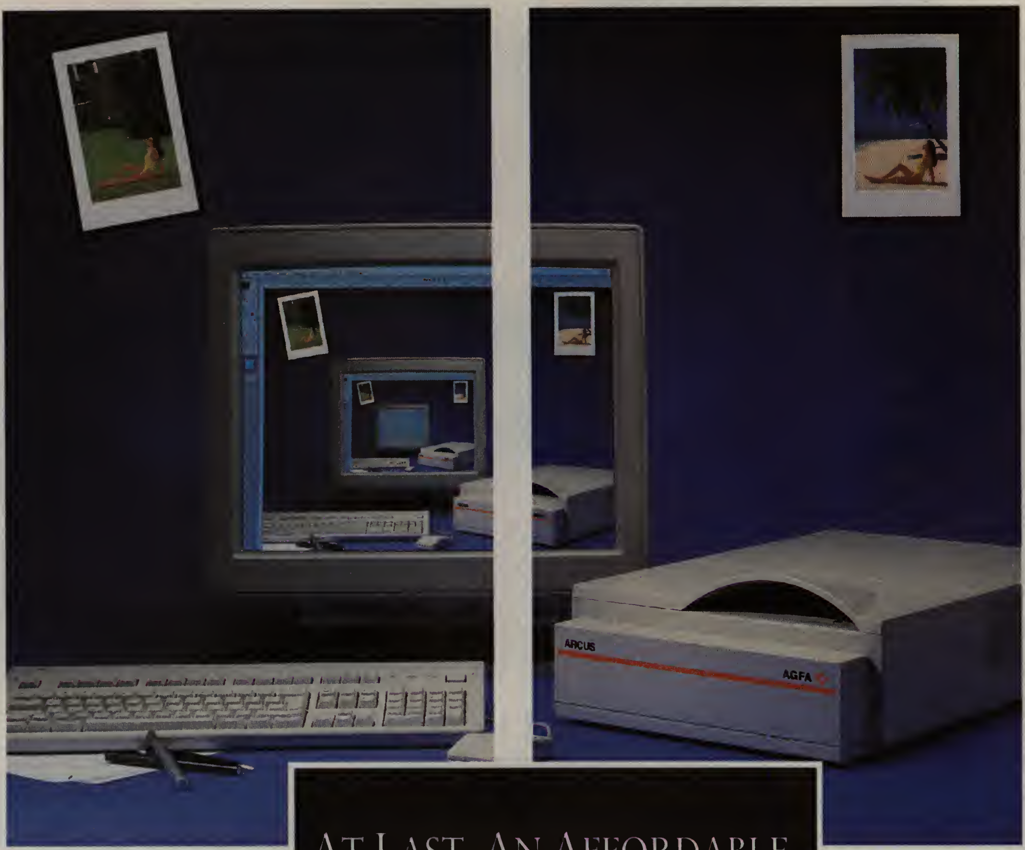

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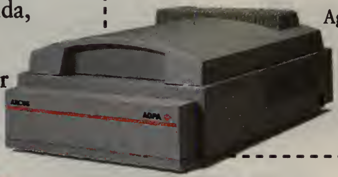

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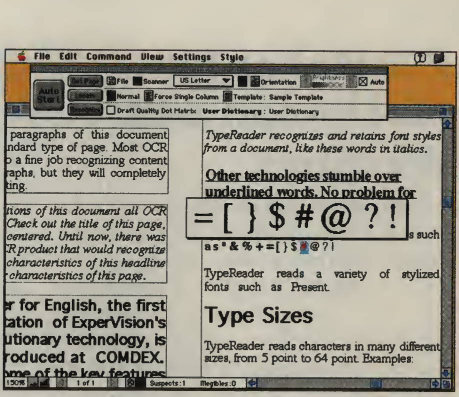
The price of a ticket: It took a little longer than planned, but Microsoft has now released its QuickTime Movie Plug-In Module (or Movie PIM) for Word 5.0, which lets you insert movies into your Word files. (In Microsoft-speak, PIM doesn't stand for personal information manager.) The module is available for $7.50 direct from Microsoft (800-426-9400) or, for the price of the call, from AppleLink, UseNet, GEnie, America Online, and CIS.

**By Russell Ito**

**The reading Mac:** OCR on the Mac hasn't really changed much since Caere shipped the first OmniPage back in 1988. There haven't been many new vendors, and the prices of OCR software have stayed high, but nothing stays the same forever. ✶ **TypeReader** ($695), from ExperVision (800-732-3897 or 408-428-9444), is the latest OCR entrant. In its most automatic mode, a single button click captures the page, determines the content areas, and launches the recognition process. The resulting file retains most character formatting plus document formatting, such as table structures, tabs, and paragraph positioning. It can export its recognized files in a variety of formats — including Excel, Word, Lotus 1-2-3, and RTF — and it also supports Hewlett-Packard's AccuPage technology, for better, easier scanning. TypeReader directly supports a variety of scanners, including models from Abaton, Apple, Hewlett-Packard, and Microtek. ✶ **OmniPage Direct** ($595), from Caere (408-395-7000), makes the OmniPage technology a true utility. OmniPage Direct installs on the Apple menu, so you can capture a page and perform the recognition without leaving your active application. The recognized data automatically drops into your currently open document. And because OmniPage Direct supports Apple events, you soon won't have to go to the Apple menu at all. ✶ **WordScan** and **WordScan Plus,** from Calera Recognition (408-720-8300), have also been upgraded to incorporate HP's AccuPage technology, but the biggest news is cost: Calera has slashed prices to $295 for WordScan and $595 for WordScan Plus. ✶ Someday OCR will be just another extension in an already overstuffed System Folder. Until then, we'll have to settle for easier, cheaper OCR. Sigh.



paragraphs of this document
ndard type of page. Most OCR
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*tions of this document all OCR*
*Check out the title of this page,*
*centered. Until now, there was*
*CR product that would recognize*
*characteristics of this headline*
*characteristics of this page.*

**r for English, the first**
**tation of ExperVision's**
**utionary technology, is**
**roduced at COMDEX.**

*TypeReader recognizes and retains font styles from a document, like these words in italics.*

**Other technologies stumble over underlined words. No problem for**

= [ } $ # @ ? !

s such
as * & % + = [ } $ @ ? !

TypeReader reads a variety of stylized fonts such as Present.

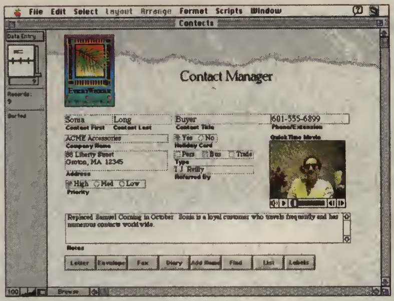
Type Sizes

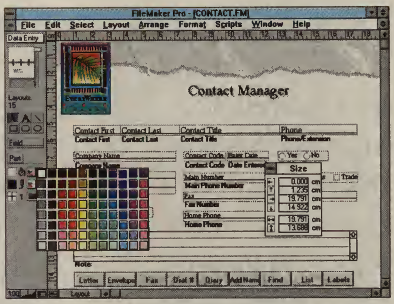
TypeReader reads characters in many different sizes, from 5 point to 64 point. Examples:

## Up to Date . . .

**QuicKeys 2.1.2,** the latest rev of CE Software's popular macro program, works better with Word 5.0 than the previous version did and has two new utilities: Instant QuicKeys, for easy macro creation, and QKIcons, for creating icons that can launch macros. 515-224-1995. $149. ✶ **Meeting Maker 1.5** is the latest edition of ON Technology's meeting scheduler. Networking improvements include better server handling and more administrator capabilities. Client improvements include color support and the ability to handle flexible working hours. 800-950-4750 or 617-876-0900. $495. ✶ **The QMS-PS 2000,** QMS' 20-ppm network printer, has had a huge price cut: $3,000. It now lists for $12,995. 800-523-2696 or 205-639-4400.

## FileMaker for Macintosh and Windows




FileMaker Pro - [CONTACT.FM]
File Edit Select Layout Arrange Format Scripts Window Help
Contact Manager

FileMaker Pro now has an identical cousin! Claris' FileMaker Pro 2.0 is the first FileMaker that comes in a Windows version (right), with full cross-platform compatibility, even in mixed-platform environments. The Mac version (left) includes full support for System 7.

Fulfilling its promise to become a true cross-platform developer, Claris has introduced its first in-house Windows program: FileMaker Pro 2.0. But before you start thinking that Claris has abandoned the Mac for Windows' greener pastures, rest assured — there's a Mac version of FileMaker Pro 2.0 too.

Put side by side, the Mac and the Windows versions look identical, and that similarity goes more than skin-deep. FileMaker Pro 2.0 offers true file compatibility between the versions, so no translation is needed. Scripts, layouts, and graphics are all immediately transportable. In multiuser environments, users can mix Mac and Windows versions of their FileMaker files, with instant updating.

For Mac purists, Claris has given FileMaker a full System 7 treatment. In fact, the company has coined yet another System 7 adjective: *omniscient.* FileMaker Pro 2.0 supports Apple events, host access via DAM, QuickTime, and external script control. The new program can launch other scripting programs such as Resolve, HyperCard, QuicKeys, and Tempo II+ for performing functions that aren't native to FileMaker. For example, it can launch Resolve or Excel to generate a chart from FileMaker data.

Claris Corp., 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052; (408) 727-8227. Price unavailable at press time.

## HP's Half-Dollar Drive

At some point, hard drives stop being hard drives and simply become storage. Hewlett-Packard's latest creation may have reached that point. It's a tiny — and we mean *tiny* — hard drive HP's calling the Kittyhawk Personal Storage Module.

Believe it or not, the Kittyhawk is a 21-megabyte drive (it contains two platters) that's almost exactly half the size of a standard 2.5-inch model. The platters each measure 1.3 inches in diameter, or roughly the size of a half-dollar. The drive weighs less than an ounce and has an average power consumption of a little more than 2 watts (2.2).

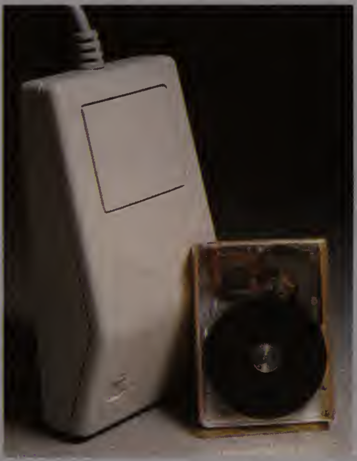
HP rates its reliability at 100,000 start/stops and more than 300,000 hours MTBF. The Kittyhawk is rated to withstand a 3-foot drop onto concrete during a read/write operation (100 g) and a 7-foot fall onto concrete when not operating (225 g).

The Kittyhawk will initially be available with either an AT or a PCMCIA interface, making it an ideal storage device for portable electronic devices such as Apple's PDAs.

What makes it ideal is the economics involved. Solid-state memory, such as a PCMCIA card with 20 megabytes, would have an OEM price of about $50 per megabyte, or roughly $1,000. HP promises prices of $10 to $12 per megabyte, or about $250 per Kittyhawk unit. Small and affordable, Kittyhawk drives may replace RAM in such devices as printers, fax machines, and answering machines.

HP expects to have volume shipments available for OEMs in the fourth quarter of 1992, which, coincidentally, is just prior to when Apple says it'll start shipping the first PDAs.

Hewlett-Packard Co., 19319 Pruneridge Avenue, Cupertino, CA 95014; 800-752-0900. OEM pricing only.



Hewlett-Packard's Kittyhawk Personal Storage Module packs 21 megabytes into a hard drive that holds two half-dollar-sized disks. Kittyhawks may replace RAM in several devices such as PDAs and printers.

## Intelligent Drawing

Applications are a lot like wildflowers: After a while, they're going to get cross-pollinated. It's been some time since we've seen a *new* drawing package, but Aldus' Envision is a drawing package with a truly cross-pollinated feature set.

Envision's biggest addition to what you would normally expect in a drawing package is intelligence. Ever since Vellum, we've seen smart cursors in CAD packages. Just about every CAD package out there has an intelligent-cursor option, and even Canvas included this feature. But Envision goes a step further. Instead of an intelligent cursor, it introduces intelligent objects. With Envision, objects "understand" factors such as size, alignment, and positioning, so if you have a group of objects and alter one, all the others will update to maintain their relative relationships so you don't have to tweak things.

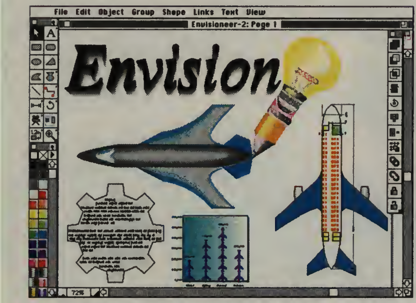
Like some 3-D packages, Envision lets you create master and clone objects. Instead of being just a dumb duplicate, a clone remains linked to its master, so if you alter the master, all the clones — wherever they might happen to be in the

## PrecisionColor for Peanuts

Although you can still spend nearly as much for a 24-bit accelerated-video card as you spent for your entire CPU, you don't have to. In fact, you can now spend even less than you spent for your monitor. Just consider Radius' PrecisionColor 24Xp.

A NuBus board with support for monitors as large as 16 inches, the PrecisionColor 24Xp drives Apple and third-party monitors plus Radius' Color Pivot/LE (in landscape orientation) and VGA monitors. With 15- and 16-inch monitors becoming the norm, the 24Xp may become the new standard in accelerated-video cards.

Radius, Inc., 1710 Fortune Drive, San Jose, CA 95131; 408-434-1010. $599.



**If you think it's time your drawing program did some of the work for you, check out Aldus' Envision. It's the first drawing program with object intelligence, which can automate tedious tasks such as alignment, sizing, and positioning.**

document — update automatically.

Automation is one of Envision's key selling points. For example, the Symmetrigon automatically draws symmetrical objects, so you don't have to try to join halves. Connector lines remain attached to the objects they connect, stretching and shortening as needed. Dimensioning lines update automatically, and a numbering tool creates numbered labels and acts like a footnote function in a word processor, updating the numbers as labels are added or deleted.

And just like FileMaker Pro 2.0, Envision is a cross-platform application, so files created on the Mac are immediately readable under Windows and vice versa.

Silicon Beach Software, Inc., 9770 Carroll Center Road, Suite J, San Diego, CA 92126; 619-695-6956. $299.

## SQL Made Easy

Now you're probably saying, "Yeah, right. That's a contradiction in terms." But what if you could work with a SQL database without having to do anything more complicated than fill out an on-screen form? That's what the folks at Brio Technology promise with their latest creation, DataEdit.

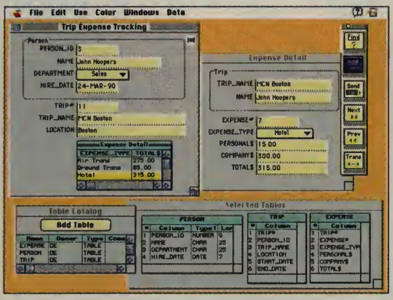
DataEdit is a forms-based front end for relational databases. Using a forms environment that looks quite a lot like FileMaker, you can query, update, and insert data into a host database without having to know how to speak SQL.

Creating a form is a simple click-and-drag procedure, because all you have to do in DataEdit is select the fields you want from a given database and drag them into the desired position. DataEdit does the rest. Working with the data is just a simple matter of working with whatever forms you need. And to prove it's actually working, DataEdit even has a SQL window that shows you the SQL queries it's building and sending.

DataEdit can connect to Butler, ORACLE, and Sybase databases via DAL. Other databases, including Ingres, will be added to the list soon.

DataEdit is expected to ship in the third quarter of this year.

Brio Technology, 444 Castro Street, Suite 700, Mountain View, CA 94041; 415-961-4110. $499.



Trip Expense Tracking

Person
PERSON_ID 3
NAME John Hoopers
DEPARTMENT Sales
HIRE_DATE 24-MAR-90
TRIP# 11
TRIP_NAME MCN Boston
LOCATION Boston

Expense Detail

| EXPENSE_TYPE | TOTAL$ |
|---|---|
| Air Trans | 275.00 |
| Ground Trans | 85.00 |
| Hotel | 315.00 |

Expense Detail

Trip
TRIP_NAME MCN Boston
NAME John Hoopers
EXPENSE# 7
EXPENSE_TYPE Hotel
PERSONAL$ 15.00
COMPANY$ 300.00
TOTAL$ 315.00

Table Catalog

| Name | Owner | Type | Comm |
|---|---|---|---|
| EXPENSE | DE | TABLE | |
| PERSON | DE | TABLE | |
| TRIP | DE | TABLE | |

Selected Tables

PERSON

| # | Column | Type | Len |
|---|---|---|---|
| 1 | PERSON_ID | NUMBER | 9 |
| 2 | NAME | CHAR | 25 |
| 3 | DEPARTMENT | CHAR | 25 |
| 4 | HIRE_DATE | DATE | 7 |

TRIP

| # | Column |
|---|---|
| 1 | TRIP# |
| 2 | PERSON_ID |
| 3 | TRIP_NAME |
| 4 | LOCATION |
| 5 | START_DATE |
| 6 | END_DATE |

EXPENSE

| # | Column |
|---|---|
| 1 | TRIP# |
| 2 | EXPENSE# |
| 3 | EXPENSE_TYP |
| 4 | PERSONAL$ |
| 5 | COMPANY$ |
| 6 | TOTAL$ |

**Do you speak SQL? If you don't but you need to work with SQL databases, consider Brio Technology's DataEdit. With DataEdit, you can retrieve data, edit it, and enter it into a SQL database by using simple forms.**

# NewsLine

**Reports and Analysis**

### PowerBook Price Slash

CUPERTINO, CA — The PowerBooks may be the next thing for a few more buyers, now that Apple has announced its new pricing scheme. The PowerBook 100's list price has been cut $200 to $600, depending on the configuration, the biggest cut coming in the 2/20-with-floppy-drive model, which now lists for $1,599. At the same time, Apple has cut the price of the PowerBook 140 by $500 for the 2/40 and the 4/40 configurations (now $2,699 and $2,999, respectively). Apple has also expanded the 140 and 170 by adding 80-megabyte hard drives. Now you can purchase the 140 as a 2/80 ($2,999) or 4/80 ($3,299) and the 170 as a 2/80 ($4,299) or 4/80 ($4,599). PowerBook 170 buyers can forgo an internal modem, because Apple has decided to offer only one configuration (4/40) with the Apple fax/data internal-modem standard.

### New Quadra 700 Prices

CUPERTINO, CA — Just as the Quadra 950 was released, Apple hacked $500 from the list price of every Quadra 700 configuration. Prices now range from $5,199 for a 4-megabyte/floppy version to $7,199 for a 4-megabyte/400-megabyte model. Apple also announced a half-price deal for the Quadra 950 Logic Board Upgrade Kit: It will sell for $1,499 through December 28, 1992. After that, its list price will be $3,000.

### Lawsuit Redux

SAN FRANCISCO, CA — Barely a month after throwing out almost all of Apple Computer's "look and feel" lawsuit against Microsoft and Hewlett-Packard, U.S. District Judge Vaughn Walker granted Apple's motion to reconsider his ruling, thus essentially returning the case to where it was a month earlier. Although Walker had dismissed most of Apple's claims based on individual interface elements, Apple had resisted breaking its case into those elements, instead arguing that the entire Mac "look and feel" should be considered. Apple attorney Jack Brown argued that, like a work of art, the Mac interface should be protected under copyright even if individual elements within it are not. Walker strongly criticized Apple for filing its papers nearly a month after his ruling and said he was "sorely tempted to reject Apple's motion out of hand." Walker's latest ruling means that the case will continue.

# Dynamite Comes in a Small Package...

Never before has so much power & technology been packed into a SupraFAXModem! The SupraFAXModem V.32bis combines a *potent* mix of fax and data features — for *explosive* results! Maximum fax potential is achieved with Group 3 fax machine compatibility at up to 14,400 bps and Class 1 & 2 software compatibility. With raw data speeds from 300 to 14,400 bps, and up to 57,600 bps with V.42bis compression, it *blasts* data over telephone lines. Plus its revolutionary display gives you 25 different status reports! For just a little more, you can add caller ID and voice capabilities later this year. All this for a *dynamite* price! In addition to the $399.95 stand-alone version (without cables and software), the Macintosh package combines the SupraFAXModem V.32bis, cables, and FAXstf™, MicroPhone™ 1.6, and CompuServe Information Manager™ software for $479.95.

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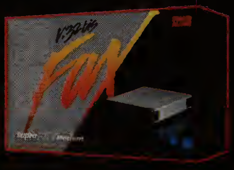
**Supra Corporation**

**1-800-944-8772**



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**SNEAK PREVIEW**

# Newton's World

**A revolution in palm-sized personal electronics is coming. And Apple's Newton technology and personal digital assistants will lead the way.**

Apple's first personal digital assistant (PDA) is a lot like the first bikini, about which an observer said: "What it reveals is interesting; what it conceals, essential." In many ways, the same can be said of Apple's PDA. As a teaser, Apple revealed details about some of the PDA's underlying technologies at the Consumer Electronics Show in Chicago last May.

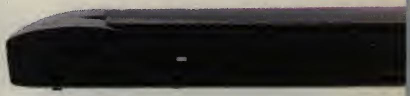
Apple unveiled an impressive collection of capabilities, which it calls its Newton technology, while keeping enough of the product specifics hidden to hold the audience in suspense until the first PDA product actually rolls out next January. With pricing expected to be between $500 and $700, the first PDA will weigh in at a fraction of the size, heft, and cost of a PowerBook.

But that's where the comparison with the PowerBooks ends. Unlike full-blown computers, the PDAs are designed as tightly focused, limited-purpose machines. For example, the first shipping model will be primarily for quick note taking; schematic sketching; simple letter writing; and performing basic personal-information-management functions such as keeping address-book, calendar, and schedule databases.

Don't expect to see Word or PageMaker on a PDA. But don't expect a simple Sharp Wizard either (even though Sharp will manufacture the first PDAs for Apple). The Newton technology is a lot more powerful than anything in a product that's hit the consumer market so far. The keys to the technology are the hardware, the operating system (called Newt/OS for short), and the interface.

Physically, the first PDA resembles its ancestor, the Sharp Wizard — at least in terms of size and weight. It's roughly the size of a paperback book and a little less than an inch thick. It weighs less than a pound (how much less, Apple couldn't say, because it didn't have a finished unit to show us) and is black.

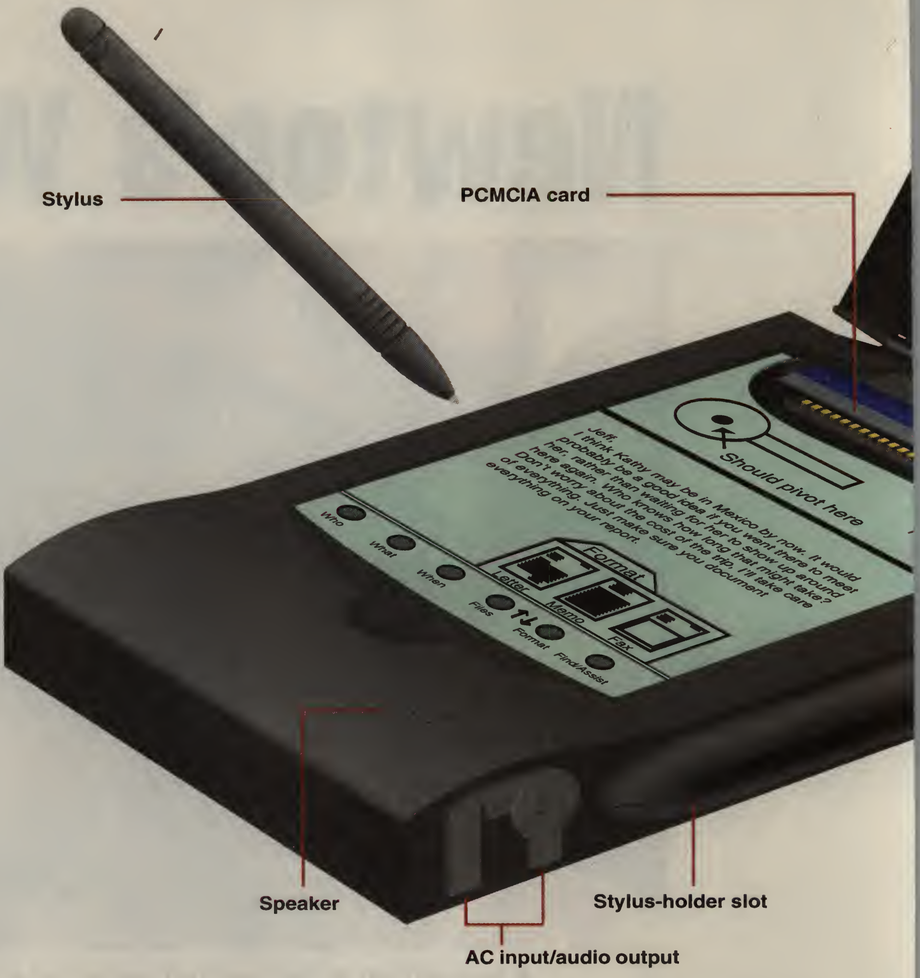
A hinged lid covers the combination touch/LCD screen, giving the whole thing the look of a cross between a Communicator and a Tricorder. The screen covers about two-thirds of the top surface area, giving ample working room while still providing what looks to be a sufficient amount of space for a wrist rest.



**Unlike full-blown computers, PDAs are designed as tightly focused, limited-purpose machines.**

What's *not* under the lid, however, will surprise Wizard users: There's no

PHOTOGRAPHY: WALT DENSON



Jeff,
I think Kathy may be in Mexico by now. It would probably be a good idea if you went there to meet her, rather than waiting for her to show up around here again. Who knows how long that might take? Don't worry about the cost of the trip, I'll take care of everything. Just make sure you document everything on your report.

keyboard! The first PDA is entirely pen-based: no mouse, no keyboard. In fact, it contains no physical buttons anywhere at all. You do everything with on-screen controls and a special stylus.

### Newton's Core

The PDA's heart is a RISC chip from the British chip manufacturer ARM Ltd. Apple invested in ARM a few years ago to explore RISC development, and this chip seems to be the first fruit of that agreement. The ARM (for Advanced RISC Machine) 610 RISC controller was developed jointly with Apple, and according to Apple, it's 1.5 to 2 times as fast as the 40-megahertz 68030 chip in the Mac IIfx. ARM designed the core of the CPU, and Apple contributed the design for a custom MMU (memory-management unit) that works with the ARM 610. The result of this codevelopment was a hardware system that was designed to work optimally with applications and small object-oriented operating systems, such as Newt/OS, in tight memory conditions.

Because Apple assumes that PDA users will want to share their work or information, the first PDA offers several connectivity features. A LocalTalk port will be included, although at this writing, Apple hasn't decided what form the port will take. For transferring information among PDAs, the units offer infrared point-to-point communications, just as with a TV's remote control. The infrared link operates at distances as great as about 6 feet, so you can send files across the table but not across the room. A later model will offer diffuse infrared capability, which will allow you to log on to an AppleTalk network and then walk around the office freely while still maintaining full contact with all the zones on the net. At some point, you should also see an AppleShare client for the PDAs, for accessing AppleShare volumes.

As for storage, the PDAs do not include any moving media (although Hewlett-Packard may have something to say about that later; see "HP's Half-Dollar Drive," in this month's New on the Menu). They include a PCMCIA (Personal Computer Memory Card International Association) slot for use with credit-card-sized solid-state memory cards and an Apple-developed PCMCIA-compatible slot that Apple calls a TRIMbus, for products that require faster throughput than what the standard PCMCIA interface can offer.

**PDA connectivity options include a LocalTalk port, infrared links, and credit-card-sized memory cards.**

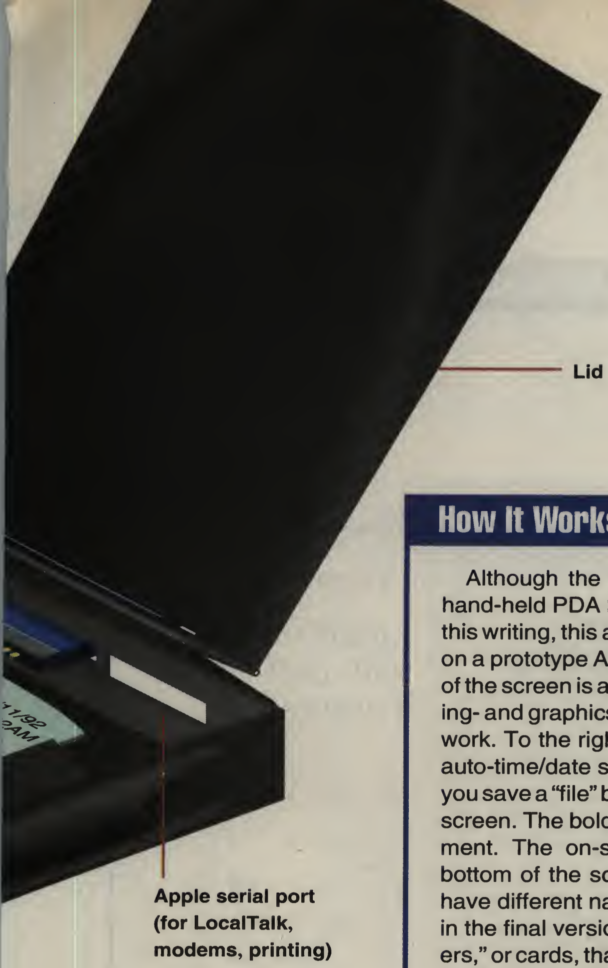
Although PCMCIA cards have shown potential, they remain extremely expensive (about $40 to $50 per megabyte, or around $400 for a standard 10-megabyte card), which makes them impractical for software distribution. Apple wouldn't comment specifically on either developer programs or software distribution, but the company did make a point of including some third-party developers at its CES announcement. Initially, Apple is focusing its third-party efforts on communications, content, and compatibility products (both Macintosh and Windows) for the PDAs.

Although users won't want to be forced to keep their data on the same disk as their application, Apple hasn't commented on how users might store data in a PDA so that two applications residing on different PCMCIA cards can use it. Hopefully, Apple's solution will be better than the one it had for the original one-floppy Mac system (remember "128K elbow?").

### Eye on Newt/OS

Newt/OS shouldn't be confused with the Mac OS. Newt/OS is a different beast altogether, designed to meet different needs and different challenges. It has four key elements that make it unique: recognition algorithms for text and graphics, the system's intelligence and software agents, forms, and a multitasking architecture.

Newt/OS' free-form handwriting-recognition algorithm is significantly different from other handwriting-recognition systems you may have encountered. If you've seen demonstrations of pen-based systems from companies such as GO, you may be surprised to find that the Newton OS doesn't force you to write each letter in a comb field that makes you feel as if you're constantly filling out a tax form. With Newt/OS, you just start writing anywhere on the screen and the recognition takes place. Like the GO OS, however, Newt/OS supports only printed


Lid
Apple serial port (for LocalTalk, modems, printing)

## How It Works: The PDA Interface

Although the final interface for Apple's hand-held PDA hasn't been finalized as of this writing, this artist's conception is based on a prototype Apple showed us. At the top of the screen is an example of the handwriting- and graphics-recognition algorithms at work. To the right of that, you can see the auto-time/date stamping that occurs when you save a "file" by drawing a line across the screen. The bold line denotes a new document. The on-screen buttons along the bottom of the screen (which will probably have different names and a different order in the final version) activate pop-up "drawers," or cards, that offer appropriate options and commands. You have the choice of formatting this document as a letter, memo, or fax. The arrows between the Files and Format buttons let you navigate through the PDA's continuous scrolling interface.

characters, although Apple maintains that cursive-writing recognition is on the way. Because Newt/OS supports free-form recognition, it can automatically align whatever you write (assuming you've written your letters on something that more or less resembles a line). It can also pick a point size that approximates your writing size and can remember the position, including the angle, of each line of writing — particularly useful when you're annotating a sketched map or graphic.

Apple claims that you don't have to train the PDA to recognize your handwriting before you use it. In fact, Apple claims that the system can recognize the handwriting of about 90 percent of its users, right out of the box. However, Apple does acknowledge that the recognition accuracy gets better with training, so don't be surprised if you have to spend some time training your first PDA.

The graphics recognition, which, like the handwriting recognition, is always on tap, offers a similar kind of intelligence. Like the handwriting-recognition function, the graphics capability is free-form: You can start drawing anytime you like. Newt/OS assumes that most people want to draw symmetrical objects, so it helps you draw neat graphics, even if you ordinarily can't draw a straight line. For example, if you draw something that's roughly a square, Newt/OS analyzes your drawing and creates a proper square of the same size. Likewise, if you draw a rough hollow arrow, Newt/OS straightens all the lines and produces a proper hollow arrow.

Intelligence and software agents (artificially intelligent "servants" that anticipate what users need) are central to the Newton operating system. Because the PDAs are intended for consumer-electronics users and not necessarily computer users, Apple's goal is to automate as much work as possible, putting the emphasis on the *A* for *assistant* in *PDA*.

Working together, intelligence and agents combine to simplify repetitive tasks, making technology work for people who might otherwise find a hand-held computer intimidating. To this end, Newt/OS can parse sentences, so that it can intelligently adjust its responses, depending on the specific command. For example, if you enter "Jeff Bailey" and then select the name and look it up in the built-in Rolodex, Newt/OS will pull the Rolodex card with all of Bailey's information, including his address, phone numbers, and so on. However, if you enter "call Jeff Bailey," select it, and look it up, Newt/OS will pull a card that includes only his name and phone numbers. Likewise, if you enter "fax Jeff Bailey," Newt/OS will pull his name and fax number. Newt/OS is one of the first practical examples of intelligence and agents in action.

Forms are another part of this simplification process. Because you aren't going to want to store formatted documents in a PDA, you need a way to format a file quickly for output. Newt/OS uses a set of forms you can create elsewhere and store in a PDA. When you're ready to print a file or send a fax, all you have to do is select the document you want to format, tap the Format button, and choose the appropriate form (the system supports batch processing for formatting multiple documents simultaneously). The Newt/OS then, in effect, performs a mail-merge, combining the data with the format, and sends the merged file to a printer or a fax modem.

Because PDAs should connect to an IBM PC or compatible as easily as to a Mac, Apple is developing forms-creation packages for both the PC and the Mac that will let you design forms for the PDAs.

Newt/OS is a multitasking operating system: It can have multiple recognition functions active at the same time. This means that you can create a drawing, using the graphics-recognition function, and then annotate it with labels, using the handwriting-recognition function — all without switching modes. This multiple-function interface for jotting notes or sketching diagrams is as natural as using paper.

### Newton's Applications

Being tightly focused, the first PDA comes with several applications already loaded into ROM. There's a note-taking function, a MacDraw/MacPaint-like graphics function, a Rolodex-like address book, and a calendar/scheduler.

The note-taking function, like the graphics function, is always available: You never have to enter a special handwriting- or graphics-recognition mode. The PDA's interface resembles a continuous scroll of paper: You write or draw whatever you want, and each time you want to start a new "document," you just draw a line across the screen, which separates what you've already done from your new work and automatically time- and date-stamps it. You can then name your work appropriately and file it for later retrieval. Apple hasn't worked out the exact mechanism by which you'll be able to "file" your documents, but it's reasonable to assume that the system will make use of aliases that will create and maintain pointers among documents and their "folders."

Because the PDA doesn't use a Clipboard, editing your work is a direct process. To select something, you just drag the stylus across the object (a word, sentence, graphic, whatever), and the selection is highlighted as if you had used a highlighter felt pen. To move the selection, you simply drag it to the new location, just as with the "drag and drop" feature in Word 5.0 and Excel 4.0. If you're repositioning text, the system will even display a little caret to indicate where the insertion will occur.

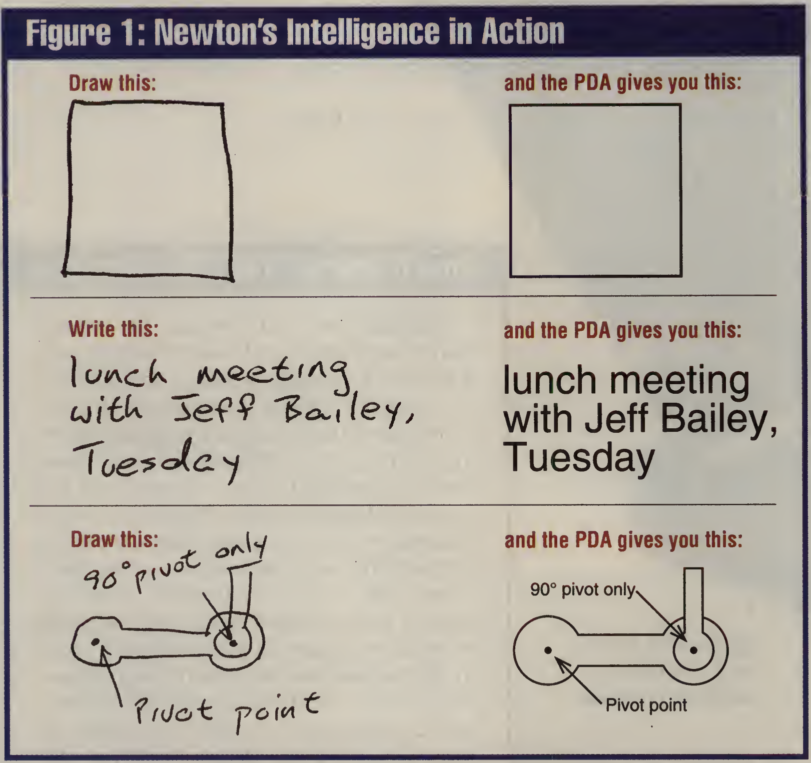


Figure 1: Newton's Intelligence in Action
Draw this:
and the PDA gives you this:
Write this:
lunch meeting with Jeff Bailey, Tuesday
and the PDA gives you this:
lunch meeting with Jeff Bailey, Tuesday
Draw this:
90° pivot only
Pivot point
and the PDA gives you this:
90° pivot only
Pivot point

**Figure 1: The PDA's operating system, called Newt/OS, is intelligent enough to figure out what you want it to do with your pen input. It contains recognition algorithms for both handwriting and graphics, so it can turn your rough drawings into neat ones or your handwriting into text or even do both at the same time.**

The graphics function combines the look of MacPaint with the object-oriented abilities of MacDraw. Although the drawing process is a lot like MacPaint's, the graphics themselves are more like MacDraw's, because they're objects, not bit maps. You can pick them up, move them around, alter their shapes, and combine them into new shapes. But unlike conventional drawing programs, the PDA's drawing function lets you erase all or part of an object, à la MacPaint.

The final graphics function may go even further. At press time, Apple was investigating auto-grouping and auto-joining as possible features. With auto-grouping, if you select several objects, they'll automatically be grouped into a single object. With auto-joining, if you position one object to touch another, they'll automatically be joined into a single compound object.

The Rolodex should look and act much like the Rolodex stack that shipped with the original HyperCard. The calendar/scheduler offers some basic personal-scheduling functions, supplemented with intelligence. For example, if you enter "lunch meeting with Jeff Bailey on Tuesday," the scheduler will "know" that you are probably talking about the Jeff Bailey in your Rolodex, the nearest Tuesday in the future, and that lunch should occur between noon and 1 P.M. It will then automatically propose these as the date and time for your meeting. And, of course, you can recall all of Bailey's Rolodex information, just as you did with the note-taking function.

Like the Mac, the PDA includes a trash can—but with a difference. Apple showed an early prototype that "tears" a deleted file off the screen, crumples it up into a ball, and tosses it into the trash (all with appropriate sound effects, of course).

**Thanks to a stylus and touch-screen input, the PDAs don't need a keyboard or mouse.**

### Newton's Future

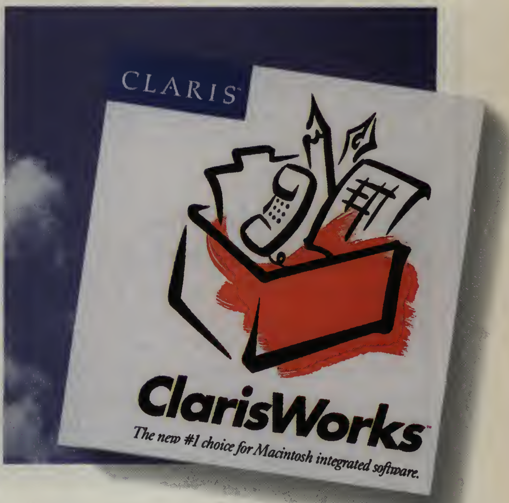
Although you won't be able to buy a PDA until early next year, you may then find that you have a choice of vendors. Apple has said that it will not be the only company to sell Newtonian PDAs next year, so look for a similar unit to come from Sharp Electronics at about the same time. As for the software that will run on it, that's an open question we'll revisit in a few months. Software distribution will be a major issue, because PCMCIA cards are so expensive that they're a thoroughly impractical distribution medium.

Apple has also already preannounced some of the features that will be included in upcoming versions. As mentioned earlier, in addition to cursive-writing recognition, Apple will introduce a model with diffuse-infrared AppleTalk capability. Although Apple hasn't said anything about models with internal fax modems, it was quick to suggest that an optional PCMCIA-based fax modem is already in the works.

The last time Apple made a fuss about intelligent agents (in its controversial Knowledge Navigator concept video, which featured a talking man in a bow tie as the agent), it generated more snickers than excitement. But the PDAs demonstrate that some form of agency can be useful, whether the machine talks to you or not. How soon handwriting and graphics recognition and other intelligent elements of the operating system will reach the Mac is anyone's guess, but it's a safe bet that Apple didn't design this technology just for its consumer products. We still have a lot to learn about the PDA; just as with the first bikini, we'll have to wait and see how much more gets revealed.

—Russell Ito

# Few things have taken off so fast.



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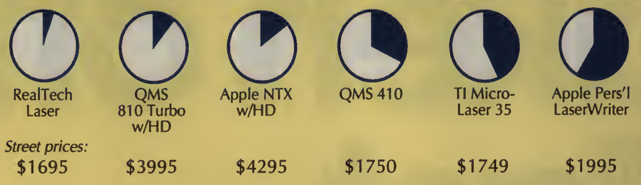
# DARE TO COMPARE.

WINNER
MacWEEK
1991
TARGET AWARD



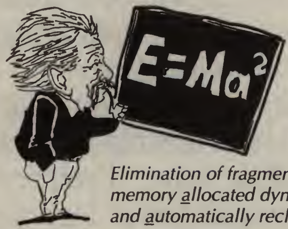
*On average, the RealTech Laser performed 4 to 5 times faster than other PostScript® laser printers in its price range.*

## *Visibly faster.*

The RealTech laser printers' high performance Weitek RISC processor prints complex documents 4 to 5 times faster than other non-RISC laser writers in their price range. ATM font rendering technology builds raw type characters 4 to 5 times faster. The RealTech uses a new version of the Sharp printer engine that prints 9 pages per minute.

## *Based on Adobe PostScript® Level 2...*

the next generation of Adobe's page description language, which has become the industry standard for defining pages of integrated text and graphics. It contains a number of performance, function and print quality enhancements that save printing time and improve quality. PostScript® Level 2 is compatible with all current application software that supports the PostScript® language. In addition, PostScript® Level 2 offers new capabilities, including forms handling, graphic patterns support, and new half-tone algorithms.



*Elimination of fragmentation = memory allocated dynamically and automatically reclaimed*

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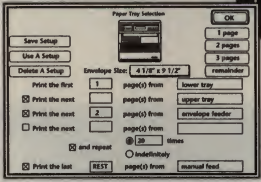
Paper Tray Selection

Envelope Size: 4 1/8" x 9 1/2"

Print the first 1 page(s) from lower tray
☒ Print the next page(s) from upper tray
☒ Print the next 2 page(s) from envelope feeder
☐ Print the next page(s) from
☒ and repeat ● 20 times ○ indefinitely
☒ Print the last REST page(s) from manual feed

*You can specify up to 4 paper changes from the menu — without ever leaving your chair!*

## *The multi-user printer!*

An ideal choice for multi-user printing environments. Second 250-sheet cassette feeder is available ($199); optional envelope feeder available for RealTech Laser only.

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|---|---|---|---|---|---|
| **Price** | $1695 | $2195 | $1749 | $2249 | $2499 |
| ***Pros*** | Weitek RISC processor | Am29005 RISC processor | Motorola 68000 | Weitek RISC processor | Motorola 68000 |
| | 9 ppm 8.5x11 | 4 ppm 8.5x11 | 6 ppm 8.5x11 | 9 ppm 8.5x11 | 8 ppm 8.5x11 |
| | Optional 2nd paper tray | — | — | Optional 2nd paper tray | Optional 2nd tray |
| | 300 dpi | 300 dpi | 300 dpi | 300 dpi | 300 dpi |
| | SCSI port | — | — | Optional SCSI port | SCSI port |
| | 2 mb RAM (+8) | 3 mb (+1) | 2 mb (+3) | 2.5 mb (+8) | 2 mb (+2) |
| | PostScript Level 2 | PS Level 2 | PS Level 2 | PS Level 2 | PS Level 1 |
| ***Cons*** | Only available through HARDWARE THAT FITS 1-800-364-USER | No SCSI port | No SCSI port | Expensive options | Pricey |
| | | 4 ppm<br>Only expandable to 4 mb RAM<br>No 2nd paper tray | 6 ppm<br>Only expandable to 5 mb RAM<br>No 2nd paper tray | Daughter board design<br>Upgradable to 10.5 mb, but not all memory usable for PS | 8 ppm<br>Only expandable to 2 mb RAM |
| | *Optional env. feeder $269*<br>*Optional 2nd paper tray $299* | | | | *Optional 2nd paper tray* |

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*Conroe, Texas*
*77301*

# $4495

**Lease price: $123/month**

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# 400 dpi/ 11x17 prin

- *High-speed printing (15 pp*
- *8 ppm (tabloid size)*
- *2 paper trays included!*
- *SC*
- *Ed pr*

## AGAINST THE

### 11x17 PRINTERS/HIGH-SPE

| | RealTech Laser | QM |
|---|---|---|
| **Price** | $4495 | $ |
| **Pros** | Weitek RISC processor | Motorola 68 |
| | 8 ppm 11x17 | 11 ppm 11x |
| | 15 ppm 8.5x11 | 22 ppm 8.5 |
| | 2 paper trays | Optional 2n |
| | 300 or 400 dpi | 300 dpi |
| | SCSI port | SCSI port |
| | 4 mb RAM upgradable to 16 | 4 mb RAM |
| | PostScript Level 2 | PS Level 1 |
| **Cons** | Only available through | Very expens |
| | HARDWARE THAT FITS | Limited to 3 |
| | 1-800-364-USER | Poor paper |
| | | Slow for co |
| | | 4 mb RAM |
| | | * Optional |

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*(Seeing is believing! We figure a real-life example in your hands is worth a thousand words.)*

| | |
|---|---|
| This is<br>300 dpi output | This is<br>400 dpi output |
| *Shown at 100% (14 pt. Times Roman)* | *Shown at 100% (14 pt. Times Roman)* |
| This<br>300 dpi | This<br>400 dpi |
| *Enlarged at 200%* | *Enlarged at 200%* |

> ***"Your RealTech Laser 400 has saved me an incredible amount of time and aggravation; the resolution makes our company newsletter look like it was output on a typesetter. And the fact that it prints 11x17 and I don't have to deal with those tiled pages anymore...what a relief! Thanks for offering such a great product."***
>
> ***—Debora Koontz***
> ***Riverword, Inc.***

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*TI MicroLaser Turbo*.............. **$1939** Lease: $53/mo.

## NEC Silentwriter Model 95

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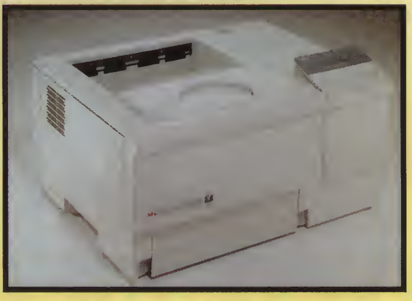

***Micro-fine toner and NEC's patented "Sharp Edge" technology gives you sharp, black print quality.***

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***Seiko Instruments ColorPoint PS.*** Same specifications as the PSX, but with a 16 MHz processor. 6 Mb of RAM standard, upgradable to 34 Mb. **$5295** Lease: $145/mo.

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## Seiko Instruments Personal ColorPoint PS

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## Seiko Instruments Smart Label Printer Plus

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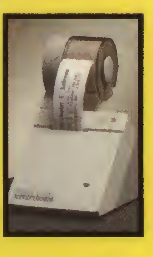

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**Color 350**

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*The color output shown above is an Aldus Freehand sample file.*

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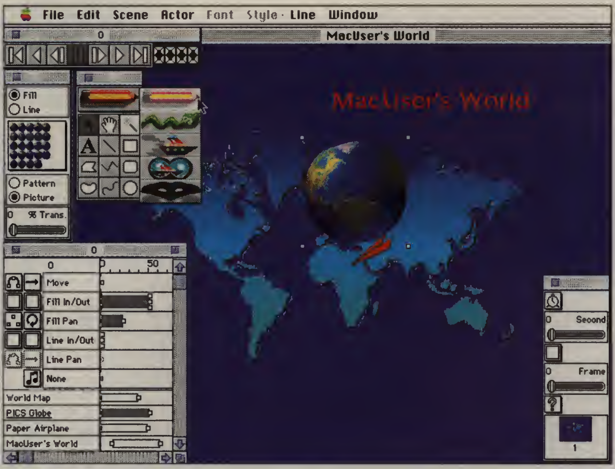
PRESENTATIONS

# Magic

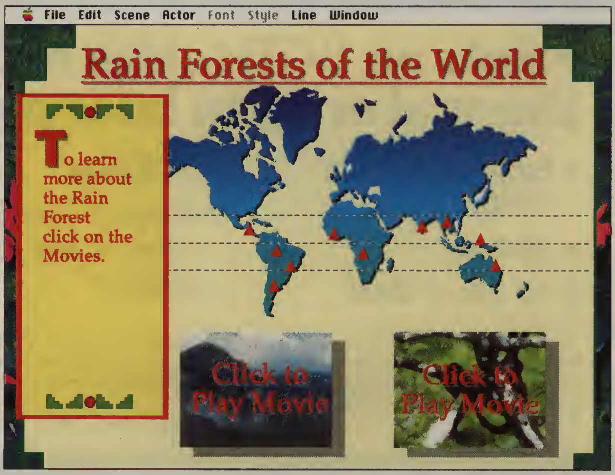
## Magic's modes and theatrical metaphors help users conjure animated business presentations.

Magic is an animated-presentation tool that produces near-professional-looking results without requiring professional-level skills. With familiar MacDraw-like tools, Magic lets you animate objects simply by drawing paths. Graphical controls let you integrate graphics, sound, and QuickTime movies into presentations as well as make them interactive without requiring the use of scripts. Although Magic's talents are impressive, the program doesn't offer the power and feature set of its more expensive sibling, MacroMind Director, which is aimed at professionals.

Magic uses a theatrical metaphor for creating animated presentations — all text and graphic objects are called actors, and actors move about on a stage. Animated sequences take place in distinct scenes, and you provide actors with custom costumes, such as colors, patterns, and sounds. You can make presentations automatically cycle through scene sequences, or you can make them interactive with buttons. QuickTime support, which is new in version 1.1 of the program, allows you to use time-based movies with your presentations, giving you more accurate control over the length of presentations than the previous version of Magic did.



Magic's MacDraw-like tools create a familiar environment for building animated presentations. The cue palette (lower left of screen) is the heart of Magic's controls, providing precision tools for controlling animated scenes.



Rain Forests of the World

To learn more about the Rain Forest click on the Movies.

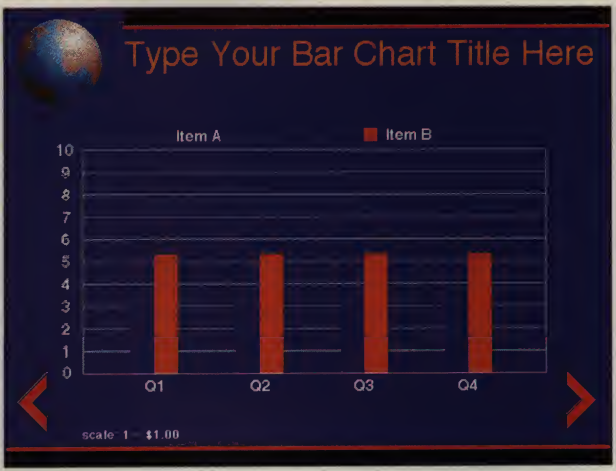
To create interactive presentations and training materials, you can make any object in Magic, including QuickTime movies, into a button.

Compared with Cinemation, a similar program from Vividus, Magic is more modal. A mode selector at the top of the program's tool palette lets you select one of six modes. In Draw mode, you can create or import actors as well as align, flip, or rotate them. By selecting an actor, you can activate one of Magic's other modes. The Shape mode lets you tweak your graphics with Bézier-like points and handles, and the Mask mode lets you mask actors and backgrounds to create transparent effects, such as QuickTime movies that play within objects and text. In Pan mode, you can create the illusion of a graphic moving through a shape. The Move mode lets you draw paths for objects and synchronize their motion, and the Run mode lets you play your finished presentation in a sequential fashion or as interactive scenes.

Although Magic's use of modes may be frustrating for some users, for others it can be a boon. The modes act as layers that help separate the functions of the program. For the most part, they make Magic manageable, particularly for novice users. Because you begin in Draw mode and always return to it before moving to other modes, you can never get lost. However, we found it annoying to be constantly returning "home." Unfortunately, you're locked into Magic's modes even after you've become adept at using the program. It seems that little of the program's manageability would be lost if, at the very least, Magic's Draw and Shape modes were combined, because shaping an object is a function of drawing it.

In Draw mode, you can create text (Magic supports ATM and TrueType); basic shapes such as ovals, rectangles, and polygons; and freehand shapes and lines. You can also import PICT files and use them as backgrounds, actors, or costumes. The ability to group objects is missing, however.

To set in motion the objects you've created, you simply draw paths for them in Move mode. Once you've set up objects and their paths, you have several options for viewing and controlling them. A floating VCR-like Control palette lets you move through an animated sequence interactively, using the play, rewind, and fast-forward controls. You can also run straight through the sequence in Run mode.



**The Magic package includes a variety of animated presentation templates — all you supply is text and data.**

### Right on Cue

To modify the actors in a scene, synchronize their motion, and fine-tune animations, you use Magic's Cue palette. The Cue palette is the program's main control center. All the controls are graphical and fairly easy to master. A time line situated along the top of the palette displays a scene's frames in ten-frame intervals. A list of all the actors in a scene, including graphic bars representing their life spans, appears at the bottom of the palette. You can expand and contract an actor's life span in a scene simply by stretching or shrinking the corresponding life-span bar.

Clicking on an actor's name in the list displays the attributes associated with that actor, which include various animation effects, transitions, and sounds. As with life spans, you modify an actor's attributes graphically by stretching and shrinking attribute bars. The Move bar, for example, lets you control the number of frames for which an actor is in motion. Using the Fill In/Out and Line In/Out bars, you can control the actor's transitions for entering and exiting from the stage. The Fill Pan and Line Pan bars control transitional panning effects, which you use with imported graphics, PICS, and QuickTime movies. Pop-up icons let you fine-tune each attribute — for example, you can specify motion to be point to point or along a spline.

You can also attach sounds to actors. Sounds are imported as snd or QuickTime resources, or you can create them within Magic, using the external microphone on a Mac LC or IIsi or a MacRecorder with a Mac II.

To see how you've modified an actor's attributes from within the Cue palette, without going into Run mode or using Magic's VCR-like controls, you can simply move a control line (called the tape head) back and forth through the frames in the time line.

### Buttons and Links

Once you've created several scenes, you can arrange them in any sequence by using a dialog box that displays a thumbnail for each scene. Clicking on and dragging a thumbnail lets you reorder the scene in the sequence. To create an interactive presentation, you can make any actor, animation, or QuickTime movie a button. With the Link palette, you can then link any button to another scene or to a FilmMaker, QuickPICS (included in the Magic package), or QuickTime movie stored on your hard disk.

To keep the size of your presentation file manageable as well as to improve the playing quality of complex animations, Magic lets you export scenes as PICS or QuickTime files and incorporate pointers to them from within the program. Once you've exported a scene, you can compress it with QuickPICS or with any of the QuickTime compression schemes. Such external movies can serve as full-screen transitions between scenes. When compressed and saved as movies separate from Magic, complex animations that incorporate many actors and elements will run more quickly and smoothly.

Overall, we found Magic easy to learn and use and its flip-card manual and tutorial helpful. You don't have to be a multimedia expert to master Magic's simple path-based animation technique, or a scripting whiz to create interactive presentations. Most users will probably be comfortable with the program in a matter of hours. The product comes with a variety of sample animation, graphics, music, sound, and 3-D clip-art files to help get you started. A series of animated presentation templates is also included — you simply plug in your text. A run-time version of the program is included too, so you can distribute your presentations for noncommercial use.

Priced at $100 less than its chief rival, Cinemation, Magic offers a lot of attractive features for the money. Magic's editing tools give novice users an amazing degree of control over modifying and coordinating each scene element, including exits, entrances, fades, and attributes. Performance can be a bit sluggish, however, and if modal programs frustrate you (constantly returning to the Draw mode is especially tedious), we recommend Cinemation over Magic.

### The Bottom Line

Anyone who's used MacroMind Director will recognize Magic's approach to creating animated presentations. But because Magic's MacDraw-like tools are easier to use than Director's and because its use of modes can help guide users through the difficult process of creating complex animations, it has a significantly shorter learning curve than its higher-priced sibling. Alternatively, Magic's similarly priced rival Cinemation provides a number of advanced animation tools, such as ghosting, that Magic lacks, and it uses frame-based editing tools, which makes it an excellent choice for users who already have traditional film-editing experience. For those who don't have that experience, Magic's tools, which offer novices a high degree of precision for controlling animation elements, may cast the right spell.

— Michael Miley

## Get Info

**Magic**

🐁🐁🐁🐁

**Published by:** Macromedia, Inc., 600 Townsend, San Francisco, CA 94103; 415-442-0200.

**Version:** 1.1.

**List Price:** $395.

DATA ANALYSIS

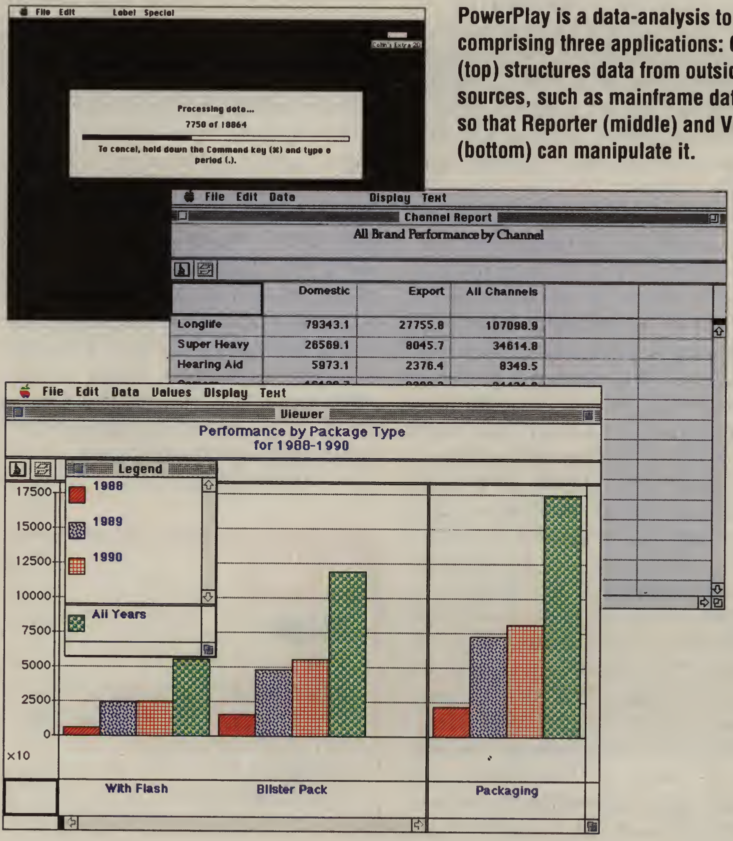
# PowerPlay for the Macintosh

## PowerPlay's graphical approach to data analysis turns out to be its Achilles' heel.

Competing head to head with MUSE for the elusive decision-support market, PowerPlay for the Macintosh is a tool designed for exploring and analyzing multidimensional data. PowerPlay differs from MUSE in several significant ways, however. First and foremost, its features can't compete with MUSE's for depth of power and functionality. PowerPlay takes a graphical approach to data analysis, a unique strategy that in the end works against it by limiting its muscle for manipulating and transforming data, tasks at which MUSE's worksheet-oriented approach excels.

PowerPlay comprises three separate applications: Creator, Viewer, and Reporter. All three can be open simultaneously under System 7, although users will work mainly within Viewer and Reporter — Creator is a tool best left to systems professionals. With its built-in DAL (Data Access Language) compatibility, PowerPlay can extract data in ASCII format from outside sources (such as corporate SQL-based mainframe databases). With the extracted data, PowerPlay's Creator formulates a special PowerPlay-formatted database that's structured according to business-specific categories such as months, quarters, years, and products.

As with MUSE (see review, July '92, page 52), the most difficult aspect of PowerPlay is the process of extracting the required data and structuring it in such a way that users can manipulate it in Viewer and Reporter. The multistep process of setting up the necessary import files is slow and tedious. You must create files of raw data (Data files, in PowerPlay parlance); descriptions of the data (the Definitions Input file); and the Generics file, comprising information that can be shared by several different PowerPlay databases. Once it's been created, a PowerPlay database exists in a proprietary file format that cannot be imported or exported directly.



Processing data...
7750 of 18864
To cancel, hold down the Command key (⌘) and type a period (.).

All Brand Performance by Channel

| | Domestic | Export | All Channels |
|---|---|---|---|
| Longlife | 79343.1 | 27755.8 | 107098.9 |
| Super Heavy | 26569.1 | 8045.7 | 34614.8 |
| Hearing Aid | 5973.1 | 2376.4 | 8349.5 |

**PowerPlay is a data-analysis tool comprising three applications: Creator (top) structures data from outside sources, such as mainframe databases, so that Reporter (middle) and Viewer (bottom) can manipulate it.**

To give you an idea of how painful the setup process can be, we've provided a brief selection (see next page) from a sample Generics file. This is the sort of ASCII file you must master before you can make PowerPlay do your bidding.

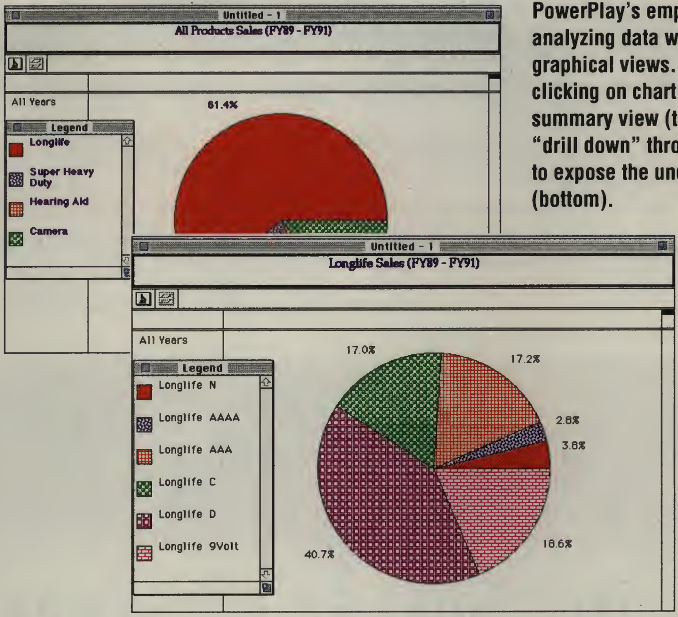
Once your data has been structured properly, you can explore and analyze it in the Viewer. The idea behind PowerPlay, as with MUSE, is that accomplishing the same analytical tasks with traditional spreadsheet or database programs would require considerable time and expertise. PowerPlay is set up primarily to explore data graphically. It provides nine chart formats, including bar, line, and cluster. By default, the charts plot summarized data, but PowerPlay lets you slice through a chart to examine the underlying detail simply by clicking on chart elements, such as the bars in a bar chart. In this way, you can create multiple graphical views of your data by "drilling down" into the underlying data categories. For example, if the summarized sales data you're viewing is for the entire U.S., you can drill down through the regions category to the states category to see sales revenue by state. You also have the option of viewing data in standard worksheet format, without giving up any of the program's layering features.

With PowerPlay's Reporter, you can then build customized reports in much the same way as you do with a database manager's report writer. Using the Compute menu in Reporter, you can also perform various calculations, such as multiply, percent, and average, on your data.

If you want to present your data, you'll probably want to move it to a spreadsheet program, because PowerPlay's charts are far from presentation-quality. Unfortunately, PowerPlay doesn't make this task as easy as it should be. The program doesn't support any of the common spreadsheet export formats. It does allow you to publish editions to other programs (subscribe isn't supported, however), so you can publish numbers and alphanumeric data in table format from the Reporter to Excel, for example, and create attractive charts there.

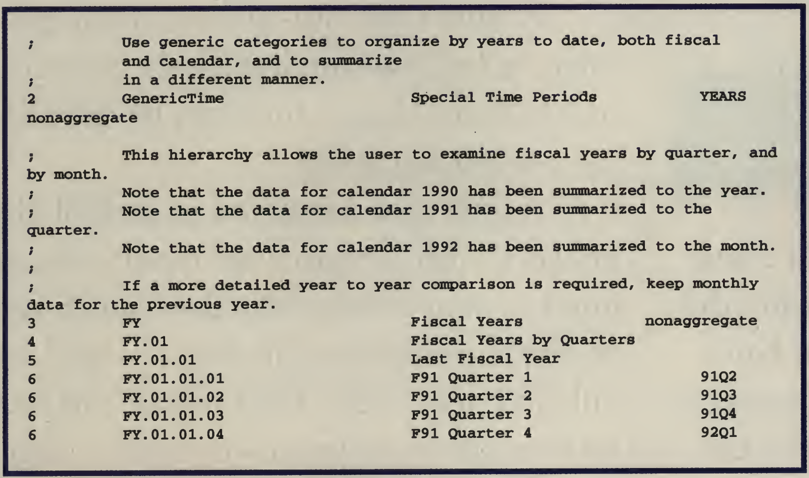
Overall, we found PowerPlay to be fairly easy to use, although its limited data-selection options and heavy reliance on graphically represented data constrains its analytical powers. That's not to say that mastering PowerPlay's graphical-delayering features doesn't require some practice. Even if you've used a 3-D spreadsheet before, you'll find the learning curve to be somewhat steep and the help you get from the manuals to be modest. (Don't even bother with the on-line help stacks — they contain such useful gems as "Use the Preferences command to set preferences for creating PowerPlay databases.") And don't expect PowerPlay's data-analysis and -exploration capabilities to be on a par with those of statistical-analysis packages such as Data Description's Data Desk or even with spreadsheet programs in the hands of power users.

PowerPlay has a prodigious appetite for hardware when you're working with large data sets. Although Cognos recommends a 68020 or more powerful machine, we recommend you use a minimal configuration of a Mac IIci with 16 megabytes of RAM, a 160-megabyte hard disk, and at least an 8-bit monitor for displaying PowerPlay's graphs. Our test platform was a Mac IIci with 32 megabytes of RAM and a 50-megahertz DayStar Digital PowerCache accelerator.



**PowerPlay's emphasis is on analyzing data with various graphical views. By simply clicking on chart elements in a summary view (top), you can "drill down" through the layers to expose the underlying data (bottom).**

PowerPlay is derived from Cognos' PowerHouse family of 4GL (fourth-generation language) products for workstations and mainframes and is available in a Windows version as well. You can run PowerPlay with System 6.0.5 or later, and the program supports System 7 features such as publish and subscribe, Balloon Help, and the revised DAL. DAL is supposed to make it easy for PowerPlay to access host databases, but based on our experience, that's a chore best left to MIS managers and other techies. The DAL problems we experienced probably have as much to do with DAL's imperfections as with PowerPlay's, but that doesn't make it any less painful to get data into the darn program and structure it properly. Of course, you also have to have a network connection if you want to import data from file servers or remote databases.



```
;        Use generic categories to organize by years to date, both fiscal
         and calendar, and to summarize
;        in a different manner.
2        GenericTime                         Special Time Periods        YEARS
nonaggregate

;        This hierarchy allows the user to examine fiscal years by quarter, and
by month.
;        Note that the data for calendar 1990 has been summarized to the year.
;        Note that the data for calendar 1991 has been summarized to the
quarter.
;        Note that the data for calendar 1992 has been summarized to the month.
;
;        If a more detailed year to year comparison is required, keep monthly
data for the previous year.
3        FY                                  Fiscal Years              nonaggregate
4        FY.01                               Fiscal Years by Quarters
5        FY.01.01                            Last Fiscal Year
6        FY.01.01.01                         F91 Quarter 1                 91Q2
6        FY.01.01.02                         F91 Quarter 2                 91Q3
6        FY.01.01.03                         F91 Quarter 3                 91Q4
6        FY.01.01.04                         F91 Quarter 4                 92Q1
```

**PowerPlay Generics files can be somewhat cryptic.**

### The Bottom Line

In its effort to make an accessible data-analysis tool, Cognos has made PowerPlay's features a bit too simplistic. The program's method of drilling down through graphically represented data layers limits users to a fairly superficial examination of their data. MUSE offers much more in data-manipulation capabilities and provides a natural query language and scripting capabilities too. Moreover, the painful process of extracting and structuring data so users can access it from PowerPlay's Viewer and Reporter applications is no trivial task. It's even more tedious than getting data into MUSE's databooks. Frankly, with both PowerPlay and MUSE priced at $695, MUSE is the better bargain.

— Don Crabb

## Get Info

### PowerPlay for the Macintosh

★★½

**Published by:** Cognos Corp.,
67 S. Bedford Street, Burlington,
MA 01803; 617-229-6600.
**Version:** 1.0.
**List Price:** $695.

*[ Asanté Introduces The Smart Hub For Smart Network Managers. ]*

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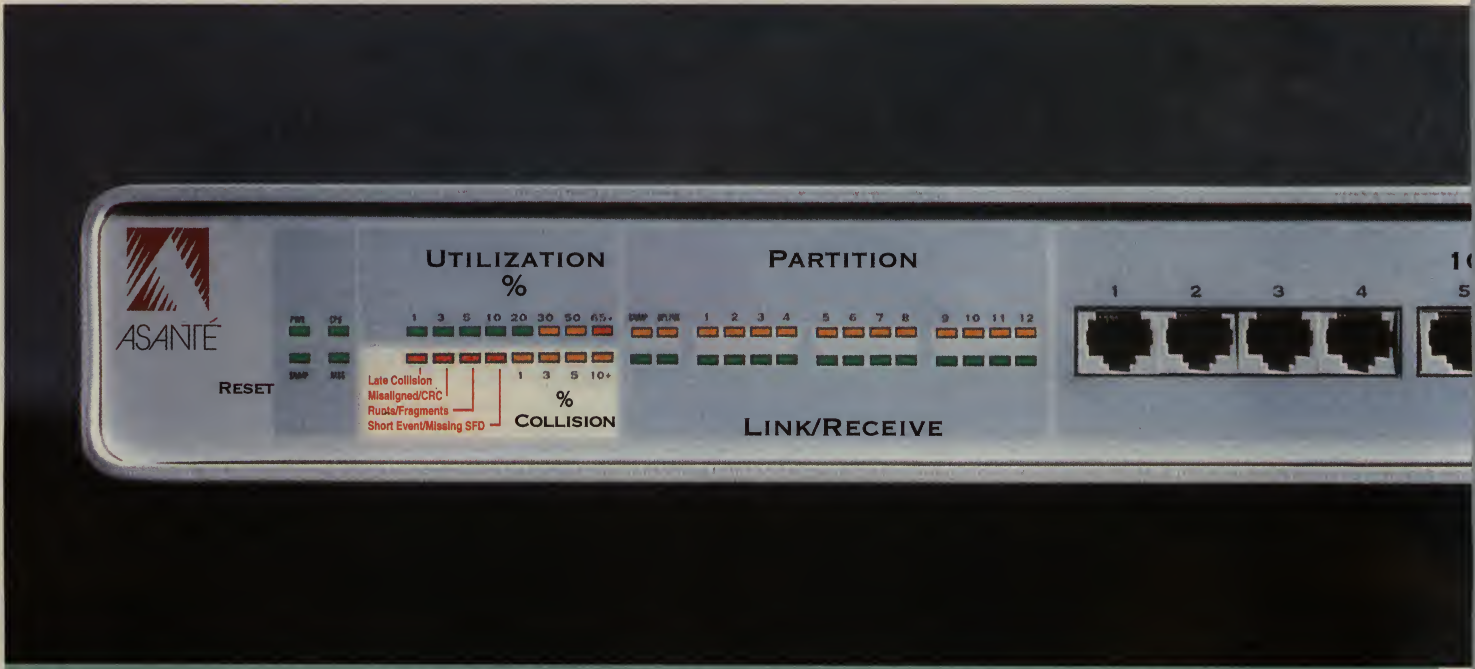

# We call it a smart hub. You'll call it a smart choice.

The AsantéHub 1012 is a 12-port, intelligent 10BaseT hub that brings enterprise-level hub capabilities to departmental Ethernet networks. Working with AsantéView network management software, it offers power, flexibility and reliability at a very economical price.

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Combining the AsantéHub 1012 and AsantéView management software creates the industry's first smart hub with both in-band (SNMP) and out-of-band network management for both PCs and Macs that uses the same graphical user interface.

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AsantéView out-of-band management software lets you simultaneously manage up to 12 AsantéHubs which can be distributed up to 2000 feet apart.

AsantéView keeps you in control of your network with performance monitoring windows, a map editing function, multi-level password protection and direct control at the hub and port levels. The software can even be set to trigger your pager whenever certain prespecified events occur. This provides you with

the flexibility to instantly solve your office network problems when you're not there.

## Be Smart.
## Be Flexible.

To take advantage of the latest technology, the AsantéHub includes a built-in expansion slot designed to accept internetworking option cards. For this slot, Asanté offers the in-band SNMP management module as an option. This allows you to delay the expense of SNMP until you need it.

In addition, the AsantéHub includes a built-in RS-232 port for remote dial-up access, and both RJ-45 and RJ-21 connectors for direct-to-computer or punch-down block connections. There is also a 3-in-1 "13th" port for interconnecting multiple hubs with backbone cabling. This port includes BNC, RJ-45 and AUI connectors supporting a variety of cabling media including thin coaxial, unshielded twisted-pair (UTP) and, with a transceiver, thick coaxial or fiber optic cabling. To maintain network services should the main operating cable fail, this backbone port supports auto-switching redundant cabling with a software override capability.

In short, the AsantéHub 1012, combined with AsantéView management software, offers all the features and benefits of a high-end enterprise hub for a departmental price.

*[ Manage your network from a Mac or PC, in-band or out-of-band, all using the same Graphical User Interface. ]*

*[ 3-in-1 auto-sensing redundant backbone port with software override capability. ]*

*[ Remote out-of-band management lets you manage your network from anywhere in the world ]*

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MODELING & ANIMATION

# SwivelMan and ShowPlace/MacRenderMan

**For an entry-level 3-D-design suite, team Macromedia's 3-D modeler with Pixar's composition/ rendering software.**

Tight budgets and sophisticated 3-D-design projects generally don't mix. However, if you're in search of a way to do RenderMan work that won't cost you an arm and a leg, consider the combination of Macromedia's SwivelMan and Pixar's ShowPlace/MacRenderMan package. Together, these two products can comprise a reasonably priced RenderMan still-image-production suite.

SwivelMan is a full-featured modeling package that supports RenderMan RIB (the standard RenderMan file format) output, and ShowPlace is a composition program for assembling and rendering scenes consisting of premodeled 3-D objects. If there were a PostScript language for the world of 3-D modeling and rendering, RenderMan would fill the bill. Available on a range of machines, from Macintoshes to Silicon Graphics workstations, RenderMan is the only practical device-independent 3-D-rendering language.

### SwivelMan

The latest version of Macromedia's 3-D-modeling package, SwivelMan, combines the standard Swivel 3D Professional program with enhanced RenderMan support. SwivelMan is a well-balanced modeler that has relatively unspectacular animation and rendering capabilities. The exception is the program's lightning-fast Phong renderer — one of the fastest Phong renderers on the Mac. Its excellent object-linking options are also key strengths.

The new RenderMan shaders are programmable surface attributes, such as roughness, bumpiness, transparency, color, and reflectivity. If you're a RenderMan-savvy user, you can access and manipulate shaders by programming, although learning how to program in RenderMan is almost as difficult as learning PostScript programming.

In SwivelMan, RenderMan shaders appear along with the standard Swivel 3D color attributes in the program's surface- and color-control dialog boxes. Preview dialog boxes display slider controls that let you modify major RenderMan shader attributes without programming. However, previews are static and don't reflect the actual shader settings, so you'll have to render objects externally, using RenderMan to see how a selected set of parameters actually looks.

SwivelMan's solid set of modeling tools includes an extruder and a lathe tool. SwivelMan also lets you create nonuniform objects with top, front, and side profiles that you can edit separately. You can create complex surfaces by arranging several cross-sectional "ribs" and then stretching a skin over them. This is a powerful modeling feature, but you can't edit the newly created skin as a model. You have to change the rib elements and then replace the skin on the object. SwivelMan's selection tools for editing control vertices are among its weakest aspects.

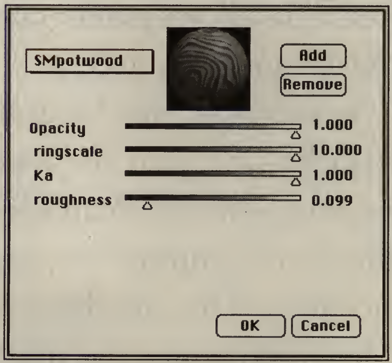
With SwivelMan, you can create hierarchical links between objects to form complex models. You can also constrain the motion axes for linked objects to create ball-joint connections, constrained sliders, and the like. The constrained-link modes, which are invaluable for complex animation and simulation work, have been one of the most compelling reasons for using SwivelMan. Something to keep in mind is that the program is designed as a "visualization" 3-D product — if you're more concerned with numerical precision and volume calculations, you'll be better off with a traditional CAD program.

SwivelMan has basic keyframe-animation abilities — you can move a set of objects around the screen and take snapshots (keyframes), and the program automatically creates motion between them. Because its animation features are basic, you'll need a full rendering and animation package such as MacroMind Three-D if you intend to do intensive animation work.

You can create as many as eight light sources in SwivelMan, but the overall lighting options are limited — there's only a Point light mode, and you can't specify colors for light sources. Most likely, you'll use the built-in SwivelMan lights as a reference and reprogram the lights in another program such as ShowPlace.

Besides RenderMan output, SwivelMan offers a wide variety of other output options, including 24-bit PICT, EPS, and DXF. You can save animation files as PICS files or as Scrapbook files. A separate file-conversion utility, Swivelizer, lets you convert DXF, Claris CAD, MacDraw, and PICT files into Swivel images. Swivelizer can also create extruded 3-D type from PostScript Type 1 fonts, although you can't bevel type edges.

The SwivelMan package includes a full copy of MacRenderMan. Although this means that you can easily get by without an additional external rendering program, you'll probably want a more advanced interface to MacRenderMan than the one SwivelMan provides. For example, if your work involves colored lights, you'll be frustrated with rendering images directly from SwivelMan. Also included is a copy of QuickPics, a utility for compiling PICS animation files into a more efficient animation file


SMpotwood
Opacity 1.000
ringscale 10.000
Ka 1.000
roughness 0.099

SwivelMan is Macromedia's solid 3-D-modeling program, Swivel 3D Professional, with the addition of RenderMan shaders. You can modify the shaders by using the sliders shown here.

format. However, in comparison with QuickTime, QuickPics is arguably less desirable for compressing animation files.

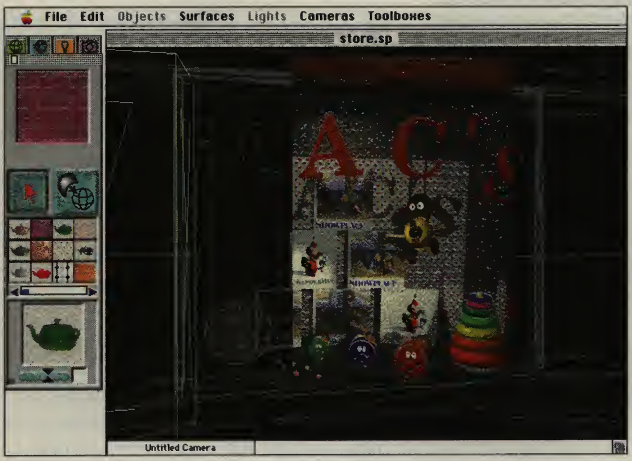
### ShowPlace/MacRenderMan

For inexperienced users, ShowPlace is a good front-end application for manipulating MacRenderMan files, making it a complement to SwivelMan, which is weak in this area. You create "scenes" by importing and arranging precreated RIB models; setting their surface attributes and lighting; and rendering the scene with MacRenderMan, which is bundled with ShowPlace. ShowPlace has no modeling or animation tools and is clearly aimed at 3-D novices — the software offers little to attract advanced 3-D artists who may already have a RenderMan-compatible rendering/animation program such as MacroMind Three-D or Electric Image.

ShowPlace imports RIB files from any RIB-compatible 3-D-modeling program, including SwivelMan. Once you've imported objects into ShowPlace, you can position, rotate, and scale them in the scene. ShowPlace's interface for manipulating objects and changing views is not exactly intuitive, but once you've gotten used to it, it's fairly workable. The toolboxes let you control object positioning and scaling, surface attributes, and the camera and lighting.

In ShowPlace, surfaces (or shaders) are called looks. ShowPlace comes with a good selection of basic looks, including metals, marbles, woods, building materials (brick, concrete, and plaster), and more. Looks are loaded into a scene one by one, and you can change the shininess and color of a look in the Surface attributes dialog box. Although the level of programmability of looks is sufficient for beginners, more-advanced users will probably be frustrated by the inability to edit all of a look's attributes. A partial but unsatisfactory workaround to editing looks is detailed in the ShowPlace documentation.

ShowPlace comes with a basic selection of shapes (including the expected primitives such as spheres, cones, cubes, and tubes) as well as with more-detailed objects (lamps, decorative columns, furniture, and chart symbols). Although several third-party clip-object packages have appeared for use with ShowPlace (the Valis Group's line of shaders and primitive objects is particularly attractive and useful), a separate RIB-capable modeler is essential. SwivelMan is a good candidate if you're looking for a reasonably priced RIB modeler. An added bonus is that ShowPlace lets you create beveled extrusions of PostScript type, but you can't separately shade the edge bevels. If you could, you could create an object with matte front and back text faces and shiny beveled edges, for example.



**Pixar's ShowPlace provides a front end that lets you arrange 3-D scenes and set surface attributes and lighting prior to rendering with MacRenderMan. ShowPlace's main working environment is shown here.**

The rendered quality of ShowPlace/MacRenderMan images is excellent. Using the Photorealistic MacRenderMan driver, you can create images that look as if they've been constructed on high-end graphics workstations. Although image quality is high, speed is not. MacRenderMan may not be the slowest renderer on the Mac, but it's far from speedy. Even MacRenderMan's so-called fast Draft mode is slow at previewing simple scenes — a faster preview renderer would be helpful.

ShowPlace saves rendered images in a variety of formats, and it can save an 8-bit anti-aliased alpha channel that masks 3-D objects from their background. This valuable feature lets you use a program such as Photoshop after rendering to create composites of multiple 3-D images that overlap one another smoothly.

An excellent tutorial videotape is included in the software package. After watching it, you'll be sufficiently prepared for tackling most of the program.

ShowPlace and MacRenderMan as well as additional shaders and model files are available on a CD-ROM for $695. If you buy the software package ($995), documentation for both programs is included on-disk — virtually no printed documentation is included. For those who buy the CD-ROM, the manuals for both ShowPlace and MacRenderMan cost $100 — and the videotape costs $19.95.

### The Bottom Line

Together, SwivelMan and ShowPlace/MacRenderMan offer novice 3-D users a good starting point for creating RenderMan images on a Mac. Although SwivelMan can be used as an all-inclusive modeling, rendering, and animation package, it cries out for a more capable animation and rendering environment. ShowPlace should be considered only in conjunction with a RIB-compatible modeler, such as SwivelMan. Moreover, the program won't have much appeal for more-advanced 3-D/RenderMan artists. Given these parameters, ShowPlace is a bit pricey, but SwivelMan offers a solid deal.

— David Biedny

## Get Info

### ShowPlace/MacRenderMan

**Published by:** Pixar, 1001 W. Cutting Blvd., Richmond, CA 94804; 510-236-4000.
**Version:** 1.1.1.
**List Price:** $995.

### SwivelMan

**Published by:** Macromedia, 600 Townsend Street, San Francisco, CA 94103; 415-442-0200.
**Version:** 1.01.
**List Price:** $895.

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PROGRAMMING

# THINK C 5 and CMaster

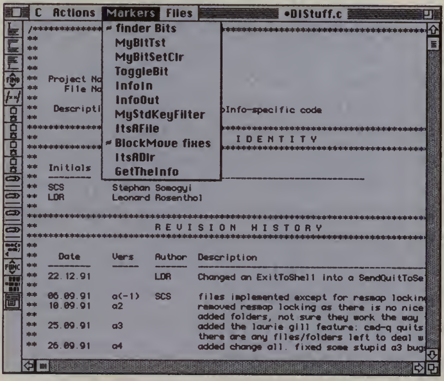
**Symantec's top-notch development tool gains an improved compiler and an add-on editing tool.**

THINK C 5 is the latest version of Symantec's excellent integrated C-language development environment. Enhancements include a rewritten C compiler with a new optimizer, expanded object extensions with C++ features, and a debugger that saves expressions in its data window that can be reused later.

The THINK C compiler has been rewritten from the ground up to produce code that's vastly superior to the code produced by previous versions. In general, the new version churns out code that's as good as or better than the code you get with Apple's MPW (Macintosh Programmer's Workshop) C compiler. And fortunately for users, the price for this improvement is not a commensurate increase in compile time — the THINK C 5 compiler generates code at the same fast clip as do previous versions. A new optional optimizer can further improve code quality, but if you choose to use it, you can expect to take a performance hit — the optimizer roughly doubles the compile time, so it's best to use it mainly to tweak final versions of code. According to Symantec, the THINK C 5 compiler complies with the ANSI C language standard.

THINK C's object extensions, introduced in version 4, have been expanded to support private and protected members and public and private inheritance. They also provide improved support for pointer-based objects. The object extensions conform to the *Annotated C++ Reference Manual* specifications, but don't mistake THINK C 5 for a C++ compiler. THINK C's Object C lacks key C++ features such as operator overloading and multiple inheritance.

Regrettably, improvements to THINK C's compiler are not accompanied by



```
/***************
**
**
**
**
**   Project Na
**      File Na
**
**    Descripti                          Info-specific code
**
*****************                        ************************************
**                                         I D E N T I T Y
*****************                        ************************************
**
**   Initials
**   --------
**   SCS          Stephan Somogyi
**   LDR          Leonard Rosenthol
**
*****************************************************************************
**                      R E V I S I O N   H I S T O R Y
*****************************************************************************
**
**    Date      Vers    Author   Description
**  --------   -----    ------   -------------------------------------------
**  22.12.91             LDR     Changed an ExitToShell into a SendQuitToSe
**
**  06.09.91   a(-1)     SCS     files implemented except for resmap lockin
**  10.09.91   a2                removed resmap locking as there is no nice
**                               added folders, not sure they work the way
**  25.09.91   a3                added the laurie gill feature: cmd-q quits
**                               there are any files/folders left to deal w
**  26.09.91   a4                added change all. fixed some stupid a3 bug
```

The THINK C 5 C-language development environment sports numerous significant enhancements, including an overhauled compiler that's vastly superior to the compilers of previous versions. To compensate for the Spartan nature of THINK C's editor, the CMaster add-on shown here supplies several enhancements, including menus and an icon bar.

## CMastering THINK C's Editor

The THINK C editing environment is positively Spartan by today's standards. To address this shortcoming, Jersey Scientific has come up with CMaster, an inexpensive and indispensable add-on that enhances the THINK C editing environment.

Once you've installed CMaster, every open window in the THINK C editor will contain a CMaster-supplied set of menus in the title bar and an icon bar on the left side of the window. The icons provide access to CMaster's most commonly used functions. Overall, CMaster's feature set is large and varied. Most noteworthy are a pop-up list of a file's functions, easy block commenting, multiple Clipboards, and quick access to search functions and to such useful features as a vers resource editor. You can configure your own keyboard command equivalents and menu items to access CMaster's features, many of which should have been integrated into the THINK C editing environment long ago. For those who spend a lot of time working in THINK C's editing environment, CMaster is worth every penny.

improvements to its linker, which still considers the smallest unit of code to be the contents of one source file and not a single function. As a result, if only a single function in a source file is used, the entire file's code is included, leading to an unnecessary increase in code size.

THINK C also comes with version 1.1 of the THINK Class Library (TCL), which is an object-oriented application framework similar to Apple's MacApp. The TCL is smaller and less complex than MacApp, with a shorter learning curve. The latest version of the TCL contains the most frequently requested enhancements to the first version of the library, which was released with THINK C 4, including several new classes that support movable modal dialog boxes and pop-up menus. Other noteworthy additions to the library are a new table class, a 32-bit coordinate system, and support for styled text. The only thing about THINK C 5 that disappoints us is the lack of enhancements to its editing environment.

### The Bottom Line

Although THINK C is beginning to show signs of age and enhancements to its editing environment remain long overdue, it's still a top-notch C-language development environment. With its rewritten compiler, capable of generating high-quality code; enhancements to its object language extensions; and an expanded THINK Class Library, THINK C is a tool that no C-language developer will want to be without.

— Stephan Somogyi

## Get Info

**THINK C**
🐭🐭🐭🐭½
**Published by:** Symantec Corp., 10201 Torre Avenue, Cupertino, CA 95014; 408-253-9600.
**Version:** 5.0.
**List Price:** $299.

**CMaster**
🐭🐭🐭🐭🐭
**Published by:** Jersey Scientific, Inc., 545 Eighth Avenue, 19th Floor, New York, NY 10018; 212-736-0406.
**Version:** 1.0.5.
**List Price:** $69.95.

PERSONAL-INFO MANAGERS

# In Control

## Attain's power outliner makes easy work of managing even the most complicated to-do lists.

If you rely on an outliner to manage your to-do list, you'll want to take a look at In Control, a program that's as fast and easy to use as traditional outliners but has one big advantage: support for multiple columns, so you can attach additional information to the topics in your outline.

### Breaking the Tradition

In Control combines the essential features of outlining and database software. As an outliner, it presents a hierarchical view of topic entries, which you can easily rearrange by simply dragging items to a new location (unfortunately, you can select and move only one item at a time). As with other outlining software, you can collapse and expand topics and subtopics in your outline to show different levels of detail.

What sets In Control apart from traditional outlining software is its multiple-row-and-column format. Each topic in your outline forms a row. To attach additional categories of information such as priority levels and dates, you can create columns that serve the same function as fields in databases. The power of In Control lies in its ability to let you sort, search, and format the information in your outline based on column fields. By entering custom sorting information as you create columns, you can also control the order in which your information is sorted, so it doesn't always have to be in alphabetical, numerical, or chronological order.

### Data In

If you're keying in data, you can use In Control's handy data-entry shortcuts. You can also import files such as address lists in text-delimited format or use Claris XTND translators (included with the package) to import files from a variety of word-processing and outlining programs.

Formatting and arranging your data is also flexible and easy, although In

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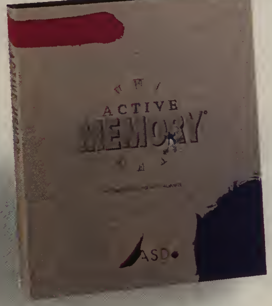
4150 BookRAM 2S 275. 4161 BookRAM 6S 749.
**★Dayna ... 60 day MBG**
5396 DaynaPORT SCSI Link PB *(BNC)*...... 299.
5360 DaynaPORT SCSI Link PB *(10-BASE-T)* 299.
5484 DaynaPORT SCSI Link PB *(3)*............ 349.
**Envisio**
1848 Notebook Display Adapter 030 *(1 MB)*. 629.
1837 *(2 MB)* ...... 939. 1835 *(4 MB)*.......... 1249.
7098 Notebook Display Adapter 030 *(6 MB)* 1329.
**★FWB, Inc. ... 30 day MBG**
5567 HammerPB 80... 789. 5568 PB 120 . 899.
**★Global Village ... 30 day MBG**
5321 ❼PowerPort/FAX V.32 2.0 ................ 489.
**★I/O Design ... 30 day MBG**
3362 PowerBook SL *(Slimline PowerBook Case)* 64.
3371 PowerBook EX *(External Drive Case)*... 75.
**★Kensington ... 30 day MBG**
1118 Compact PowerBook Case .................. 49.
1092 Deluxe PowerBook Case ...................... 79.
5976 PowerBook Keypad.............................. 99.



**★ASD Software ... 30 day MBG**
5313 ❼*Active Memory 2.0*—Facilitates sharing reminders and info over a LAN. Unlike other PIM's it's designed for networks and is System 7 savvy...................................... **$125.**
5314 ❼*(5 user)*.. **315.** 5315 ❼*(10 user)*.. **625.**

**MASS Microsystems**
6304 HitchHiker Portable Granite Case *(80 MB)* $749.
6306 1" Portable Drive Granite Case *(80 MB)* 499.
6313 1" Portable Drive Granite Case *(120 MB)* 599.
3655 MASS fm 24/96 *(portable modem)*...... 185.
**NEC**
6577 CDR37 Portable CD-ROM Drive ......... 399.
**PowerBook Memory Modules**
3742 PowerBook Modules 2 MB .................. 139.
5090 4 MB........ 249. 5091 6 MB.......... 349.
**PSI Integration, Inc.**
5320 ❼PowerModem .................................. 206.
6961 ❼PowerModem 10/42 ........................ 295.
**Sophisticated Circuits**
7057 PowerPad.. 79. 7059 w/QuickKeys .. 119.
**Sigma Designs**
6939 Power Portrait *(Granite Case)*............ 849.
**★T/Maker ... 30 day MBG**
5316 The PowerBundle Carry Case *(only)*..... 75.
3508 The PowerBundle with Carrying Case 159.

**After Hours Software**
1352 ❼*TouchBASE 2.0.1*—Keeps track of personal & business contacts................. **$79.**
3314 ❼*DateBook 1.0*—Combines calendar, scheduling, alarms, & To-Do lists to help you keep on top of your important events...... **79.**

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2105 462: 4 MB, 60 MB HD *(incl. math copro.)* 3579.
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2669 882: 8 MB, 80 MB HD *(incl. math copro.)* 4079.

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**A Lasting Impression**
❼ResumExpert or Cover Letters..... *ea.* 48.
**Abacus Concepts**
7106 ❼StatView 4.0 *(June '92)* .................... 369.
**★Acius ... 30 day MBG**
5618 ❼4th Dimension 2.2.3......................... 509.
**Amaze, Inc.**
4989 ❼CATHY Daily Planner........... *special* 39.
3582 ❼The Far Side Computer Calendar ...... 45.

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4902 ❼*Word 5.0*—Latest update to Word 4.0 which won the 1992 *Macworld* World Class Award for Word Processors. Offers even more tools to make everyday easier .... **$295.**
1503 ❼*Word 5.0 Upgrade* ........................ **125.**

**★ASD Software ... 30 day MBG**
5313 ❼Active Memory 2.0 *(1 user)* ............. 125.
5314 ❼*(5 user)*.... 315. 5315 ❼*(10 user)*.. 625.
**★Avery ... 60 day MBG**
7446 ❼MacLabel Pro 1.5 ................................ 48.
**★Banner Blue ... 30 day MBG**
3548 ❼Org Plus Advanced 1.0.................... 125.
**★Baseline Publishing ... 30 day MBG**
8881 ❼Thunder 7 1.0.5 ................................ 55.
**★Beagle Bros. ... 30 day MBG**
3119 ❼BeagleWorks.. 184. 3563 Upgrade ... 95.
**★Chena Software ... 30 day MBG**
1594 ❼Fair Witness 1.2.............................. 189.
**★Claris ... 30 day MBG**
1129 ❼MacWrite II 1.1V2............................. 89.
3903 ❼ClarisWorks 1.0 199. 3743 ❼Upgrade 95.
3531 ❼Claris Resolve 125. 3745 ❼Upgrade 95.
8216 ❼FileMaker Pro 1.0V2........................ 199.
1125 ❼MacProject II 2.5V1 ......................... 345.
**★Essential Software ... 30 day MBG**
4086 ❼Easy Alarms 2.0 *(July '92)*................. 61.
7117 ❼*(5 user)*... 189. 7113 ❼*(10 user)*... 319.
**★Expert Software ... 30 day MBG**
5234 ❼Expert Writer 1.0.............................. 29.
**★Intuit ... 30 day MBG**
2507 ❼Quicken 3.0 ....................................... 42.
**★Kaetron Software ... 30 day MBG**
7066 ❼OrgChart Express *(July '92)*............ 124.
8941 ❼TopDown 3.1 199. 6317 Upgrade 129.

**★Baseline Publishing ... 30 day MBG**
8881 ❼*Thunder 7 1.0.5*—Truly interactive spelling & thesaurus program for all applications **$55.**
7783 ❼*INIT Manager 1.1*—Locate, manage & analyze all your start-up documents......... **33.**
3114 ❼*INIT Info Pro 1.0*—The guide to INIT compatibilities and system conflicts......... **39.**

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**★Essential Software ... 30 day MBG**
4086 ❼*Easy Alarms 2.0*—Personal reminders made easy! New 2.0 features calendars with text, customizable list windows, and printing of datebooks and calendars.................... **$61.**
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3606 ❼1-2-3 for Mac.. 329. 3604 Upgrade . 89.
**★MECA ... 60 day MBG**
2796 ❼Managing Your Money 4.0 ................ 49.
**★Microlytics ... 60 day MBG**
6461 ❼WordFinder Plus .............................. 39.
7820 ❼Random House Encyclopedia 1.0 ..... 68.
**★Microsoft ... 30 day MBG**
2884 ❼Works 2.00E........................................ 155.
3669 ❼Excel 4.0 *(June '92)* 295. 5237 Upgrade 99.
4902 ❼Word 5.0... 295. 1503 ❼Upgrade .. 125.
5454 ❼The Microsoft Office 2.5 *(June '92)* .. 475.
**★Niles & Associates ... 30 day MBG**
4602 ❼EndNote 1.5... 85. 8010 ❼Plus 1.2 145.
**Nisus Software**
5683 ❼Nisus 3.06 238. 1612 ❼Compact 3.3 92.
**★Nolo Press ... 30 day MBG**
2981 ❼WillMaker 4.0 *(not valid in LA.)*........... 35.
1204 ❼Living Trust 1.0 *(not valid in LA.)*........ 45.
**★OCCAM Research Corp. ... 60 day MBG**
3697 ❼MUSE 1.01 ........................................ 469.

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3669 ❼*Excel 4.0*—Latest update to Excel 3.0 which won the 1992 *Macworld* World Class Award for *Spreadsheets*. Even more powerful and easy-to-use than before ................ **$295.**
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6932 ❼Employee Handbook Toolkit............ $65.
6975 ❼Business Plan Toolkit ........................ 75.
**★Pastel Development ... 30 day MBG**
1785 ❼DayMaker 1.01 ................................ 61.
**PC Globe, Inc.**
3608 ❼MacUSA... 35 3356 ❼MacGlobe ... 46.
**★Portfolio Systems ... 30 day MBG**
7992 ❼DynoPage 1.7 or 6916 ❼Dynodex. *ea.* 75.
**★PowerUp ... 30 day MBG**
7696 ❼Calendar Creator 1.01 *limited special* 39.
**★Provue ... 60 day MBG**
4582 ❼Panorama II 2.0.5 .............................. 239.
**★Reality Technologies ... 30 day MBG**
6929 ❼WealthBuilder 1.02 ............................ 95.
**★Reference Software ... 30 day MBG**
6268 ❼Grammatik Mac 2.0 ............................ 58.
**Round Lake Publishing**
❼LetterWorks, SALES or LEGAL .... *ea.* 45.
**★SoftSync, Inc. ... 30 day MBG**
7129 ❼Accountant, Inc. 335. 3828 MultiUser 569.
**★Symantec ... 30 day MBG**
2237 ❼GreatWorks 2.0 129. 2278 ❼Upgrade 99.
3422 ❼More 3.1 ............................................ 265.
**★Synergy ... 30 day MBG**
6617 ❼KaleidaGraph 2.1.3............................ 150.
**★Teleware ... 30 day MBG**
7616 ❼M.Y.O.B. 3.0 ...................................... 138.
**★TIMESLIPS ... 30 day MBG**
2986 ❼Timeslips III 2.1 ................................ 194.
**★T/Maker ... 30 day MBG**
3639 ❼WriteNow 3.0 149. 5259 ❼Upgrade 49.
5253 ❼WriteNow 3.0 Competitive Upgrade ... 69.
**★Vertical Solutions ... 60 day MBG**
5886 ❼FastLabel 3.1 ...................................... 45.
**★WordPerfect ... 60 day MBG**
3800 ❼WordPerfect 2.1 279. 4711 Upgrade 89.
**★Wordstar ... 30 day MBG**
6984 ❼Correct Grammar 3.01......................... 55.
3554 ❼American Heritage Dictionary 1.0....... 59.
5281 ❼Correct Writing, Quotes & Letters....... 75.
**★Working Software ... 60 day MBG**
5896 ❼Last Resort 38. 3792 ❼Spellswell 2.2 44.

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**★Abracadata, Ltd. ... 30 day MBG**
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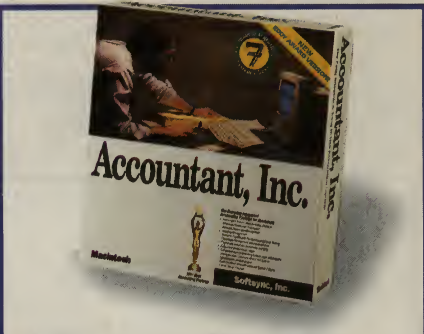
**Adobe Systems**
❼Adobe Type Sets for Business .... *ea.* 95.
❼Adobe Type Library *(Vol. 1-260)*......... call
8794 ❼Adobe Type On Call *(CD-ROM)*......... 56.
6957 ❼Adobe Type Reunion 1.0.2................ 41.
5750 ❼Adobe Type Manager 2.0.3............... 59.
6053 ❼Adobe Plus Pack 2.0 ........................ 118.
6098 ❼TypeAlign for ATM 1.0.4.................... 61.
5001 ❼Adobe Streamline 2.0 ........................ 122.
4145 ❼Adobe Premiere 1.0........................... 305.
8171 ❼Adobe Illustrator 3.2 *(w/ATM)*........... 368.
6644 ❼Adobe Photoshop 2.01 ...................... 548.
**★Aldus ... 30 day MBG**
6674 ❼Aldus Personal Press 2.0 .................. 99.
2461 ❼Aldus Gallery Effects 1.0 .................. 128.
3506 ❼Aldus SuperPaint 3.0......................... 132.
3507 ❼Aldus Super 3D 2.5 .......................... 325.
4751 ❼Aldus Persuasion 2.1......................... 325.
1330 ❼Aldus FreeHand 3.1........................... 394.
7088 ❼Aldus PageMaker 4.2 ........................ 494.

**Adobe Systems**
6644 ❼*Adobe Photoshop 2.01*—1992 *Macworld* World Class Award for *Image Processing* **$548.**
4145 ❼*Adobe Premiere 1.0*........................ **305.**
8171 ❼*Adobe Illustrator 3.2 (w/ATM)* ...... **368.**

**Altsys**
1983 ❼EPS Exchange 2.0 ............................ 89.
1195 ❼Fontographer 3.5 ............................ 259.
**★Ares Software ... 30 day MBG**
8878 ❼FontMonger 1.5 *(June '92)* ................ 93.
**★Baseline Publishing ... 30 day MBG**
8055 ❼Screenshot 1.2 .................................. 34.
**Broderbund Software**
3572 ❼Kid Pix 1.2.. 34. 1427 ❼Print Shop.. 35.
6281 ❼TypeStyler 2.0 *(with ATM)*................ 126.
**★Casady & Greene ... 30 day MBG**
8879 ❼Fluent Font Library 4.05 .................... 99.
**★Claris ... 30 day MBG**
2518 ❼MacDraw Pro 275. 4733 ❼Upgrade 99.
8007 ❼Claris CAD 2.0................................ 599.
**Custom Applications**
8037 ❼Freedom of Press Light 3.03 *(17 fonts)*. 84.
**★DeltaPoint ... 60 day MBG**
3558 ❼DeltaGraph Pro 2.0.......................... 199.
**★Deneba Software ... 30 day MBG**
3227 ❼Canvas 3.02 ...................................... 248.



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7129 ❼*Accountant, Inc. 3.0*—1991 MacUser Editors' Choice Award for *Best Accounting Package*. "The most complete integrated accounting and financial mgmt. package," *MacUser* (3/91) **$335.**
3828 ❼*Accountant, Inc./MultiUser 1.0* ...... **569.**

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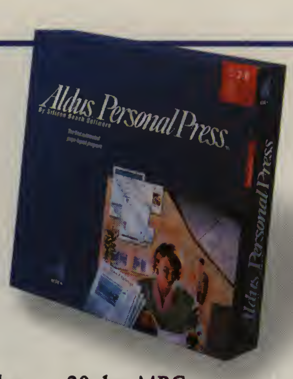

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| | **★Expert Software ... 30 day MBG** | |
| 4870 | ❼Expert Color Paint 1.0 | 29. |
| | **Fractal Design** | |
| 5425 | ❼Painter 1.2 | 235. |
| | **★Letraset ... 30 day MBG** | |
| 4709 | ❼LetraStudio 2.0 | 139. |
| | **Light Source** | |
| 3733 | ❼Ofoto 1.1.1 | 279. |
| | **★Linguist's Software ... 60 day MBG** | |
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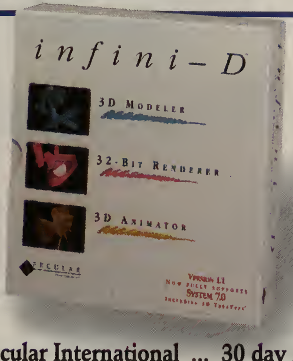
| | **★MacroMedia ... 30 day MBG** | |
| 7441 | ❼Swivel 3D Professional 2.0 | 479. |
| | **★MicroMaps ... 30 day MBG** | |
| 7556 | ❼MapArt *(PICT)* or 7555 *(EPS)*....... *ea.* | 89. |
| | **★Microsoft ... 30 day MBG** | |
| 2878 | ❼PowerPoint 2.01E | 245. |
| | **Postcraft International** | |
| 2210 | ❼Effects Specialist 1.04 | 89. |
| | **Quark** | |
| 7612 | ❼QuarkXPress 3.1 | 549. |
| | **★Specular International ... 30 day MBG** | |
| 4962 | ❼Infini-D 1.1 | 647. |
| | **★Timeworks ... 30 day MBG** | |
| 7115 | ❼Publish It! *Easy* 2.1 w/File-It! . *special* | 89. |
| | **★T/Maker ... 30 day MBG** | |
| | ❼ClickArt bitmapped... 38. or EPS ... | 82. |
| 1858 | ❼FaxMania *(birthdays-bulletins)* | 45. |
| | **★Virtus Corporation ... 30 day MBG** | |
| 4488 | ❼WalkThrough 1.1 | 309. |



**★Specular International ... 30 day MBG**
4962 ❼*Infini-D 1.1*—An integrated 3D modeling, 32-bit rendering, & 3D animation package. A powerful 3D environment to create images and present ideas. Features: anti-aliasing, shadowing, 3D texture mapping, noise, & shading... **$647.**

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| | **★Abbott Systems ... 30 day MBG** | |
| 2515 | ❼Calc+ 1.0 39 5236 ❼CanOpener 2.0 | $59. |
| | **After Hours Software** | |
| 1352 | ❼TouchBASE 2.0.1 | 79. |
| 3314 | ❼DateBook 1.0 | 79. |
| | **★Aladdin Systems ... 30 day MBG** | |
| 6740 | ❼StuffIt Deluxe | 55. |
| | **★Aldus ... 30 day MBG** | |
| 5100 | ❼Aldus SuperCard 1.6 | 195. |
| | **★ALSoft ... 30 day MBG** | |
| 9808 | ❼MasterJuggler 1.57C | 25. |
| 9807 | ❼DiskExpress II 2.11 | 49. |
| 5204 | ❼ALSoft Power Utilities 1.01 | 62. |
| | **★Alysis Software ... 30 day MBG** | |
| 2687 | ❼SuperDisk! | 49. |
| 1608 | ❼More Disk Space | 55. |
| | **Apple Computer** | |
| 1074 | ❼System 7 Personal *(w/freee PCTV video)* | 79. |
| 3413 | ❼System 7 Group Upgrade Kit | 259. |
| 7072 | ❼QuickTime Starter Kit | 149. |

**★Microcom ... 30 day MBG**
6978 ❼*Microcom Value Pak (MVP)—A* Collection of essential utilities for the Mac. Now available at one great price. MVP includes Virex, 911 Utilities, Complete Undelete, Citadel & CarbonCopy........ **$144.**

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| | **★ASD Software ... 30 day MBG** | |
| | *5 & 10 users packs available.* | |
| 7085 | ❼FileGuard 2.7 *(1 user)* | 138. |
| 2552 | ❼WindoWatch *(1 user)* | 91. |
| | **★Baseline Publishing ... 30 day MBG** | |
| 7783 | ❼INIT Manager 1.1 | 33. |
| 3114 | ❼INIT Info Pro 1.0 | 39. |
| | **★Berkeley Systems ... 30 day MBG** | |
| 5737 | ❼After Dark 2.0V | 28. |
| 2198 | ❼More After Dark *(M.A.D.)* | 23. |
| 2196 | ❼After Dark & M.A.D. Bundle | 40. |
| | **★Casa Blanca Works ... 30 day MBG** | |
| 1593 | ❼Drive 7 2.01 | 49. |
| | **★CE Software ... 60 day MBG** | |
| 1727 | ❼CalendarMaker 3.0.1 | 31. |
| 8024 | ❼QuickKeys$^2$ 2.1.2 | 93. |
| | **★Central Point ... 30 day MBG** | |
| 5041 | ❼Mac Tools Deluxe 2.0 *(June '92)* | 92. |
| | **★Claris ... 30 day MBG** | |
| 8734 | ❼HyperCard Development Kit 2.1 | 139. |
| | **★Dantz Development ... 30 day MBG** | |
| 3393 | ❼DiskFit Pro 1.0 | 72. |
| 5255 | ❼Retrospect 147. 7945 ❼Remote 1.3 | 264. |
| 7946 | ❼Remote *(10 Pak)* 147. 3112 ❼*(50 Pak)* | 649. |
| | **★Fifth Generation ... 30 day MBG** | |
| 4287 | ❼PYRO! 4.01 | 27. |
| 3955 | ❼Suitcase 2.0 | 53. |
| 8286 | SuperLaserSpool 3.0 | 99. |
| 5178 | ❼FastBack Plus or 5725 ❼DiskLock ... | 125. |

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2552 ❼*WindoWatch*—A transparent window tracking utility that automatically generates a time sheet in the background or over a LAN as you work .......... **$91.**
2549 ❼*(5 user)*.. **279.** 2548 ❼*(10 user)*.. **469.**

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| | **★FWB, Inc. ... 30 day MBG** | |
| 2999 | ❼Hard Disk Toolkit 1.1 | 125. |
| | **★ICOM Simulations ... 30 day MBG** | |
| 6296 | ❼Intermission 1.0 *(June '92)* | 29. |
| 3731 | ❼OnCue II 2.0 | 55. |
| | **★Insight Development ... 30 day MBG** | |
| 6171 | ❼MacPrint 1.3 | 92. |
| | **★Kent Marsh Ltd. ... 30 day MBG** | |
| 9513 | ❼FolderBolt 1.02 | 71. |
| 1839 | ❼NightWatch II | 89. |
| | **★Kiwi Software ... 60 day MBG** | |
| 6267 | ❼KiwiENVELOPES! 3.1.5 | 32. |
| 3518 | ❼KiwiPOWERWINDOWS | 50. |
| | **★Magic Software ... 30 day MBG** | |
| 7267 | ❼AutoSave II | 26. |
| 7270 | ❼Backmatic | 50. |
| | **★Microcom ... 30 day MBG** | |
| 4803 | ❼Virex/Mac... 57. 5885 ❼*(10 user)* .. | 399. |
| 8561 | ❼911 Utilities or 2462 ❼Citadel w/Shredder | 89. |
| 6978 | ❼Microcom Value Pak*(MVP) (see box)* | 144. |
| | **MicroMat Computer Systems** | |
| 3732 | ❼MacEKG II | 110. |
| | **★Microseeds Pub. ... 60 day MBG** | |
| 7068 | ❼INITPicker 2.02 | 34. |
| 2913 | ❼Redux 1.63 or 2936 ❼HAM ......... *ea.* | 49. |
| | **★Nine to Five Software ... 30 day MBG** | |
| 9767 | ❼Reports 2.1 | 94. |
| | **★Now Software ... 30 day MBG** | |
| 1793 | ❼Now Up-To-Date 1.0 *(1 user).* | 65. |
| 2371 | ❼*(5 user)*.... 259 2366 *(10 user)*...... | 395. |
| 6925 | ❼Now Utilities 3.02 | 83. |
| | **★ON Technology ... 1 year MBG** | |
| 6385 | ❼On Location 2.0 | 75. |
| | **Palomar Software** | |
| 8210 | ❼PLOTTERgeist 2.0 | 249. |
| | **★Salient Software ... 30 day MBG** | |
| 7404 | ❼DiskDoubler 3.7.5 | 45. |
| 4838 | ❼AutoDoubler.. 45. 6092 *(10 pak)* ... | 295. |
| | **★Symantec ... 30 day MBG** | |
| 5176 | ❼Symantec AntiVirus for Mac (*SAM)*.... | 64. |
| 5724 | ❼Symantec Utilities for Mac *(SUM II)*.... | 96. |
| 6748 | ❼Norton Utilities for Mac 2.0 | 95. |
| 3421 | ❼THINK Pascal 165. 2688 ❼THINK C | 199. |
| 9957 | ❼THINK Reference 1.0 | 68. |
| | **Teknosys** | |
| 5203 | ❼HELP! | 89. |
| | **★TGS Systems ... 60 day MBG** | |
| 6667 | ❼Prograph 2.5 | 309. |
| | **★Thought I Could ... 30 day MBG** | |
| 4843 | ❼Wallpaper 1.0.2 | 37. |
| | **UserLand Software** | |
| 4753 | ❼Frontier | 189. |
| | **★Visionary Software ... 30 day MBG** | |
| 3887 | ❼First Things First 2.1 | 41. |

# software collection

**★Claris ... 30 day MBG**
2518 ❼*MacDraw Pro 1.5*—Powerful new upgrade with significant performance enhancements & speed, it now provides full System 7 functionality & QuickTime support.......... **$275.**
4733 ❼*MacDraw Pro Upgrade*.................. **99.**

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5805 ❼Sprout! 1.0 *(veggie garden planner)*... 47.
**★Baseline Publishing ... 30 day MBG**
7785 ❼Talking Moose 4.0.2 ........................ 22.
**Broderbund Software**
6516 The Playroom 2.0 *(CP) (color)* ............. 29.
❼Carmen Sandiego Series *(CP)*..... *ea.* 29.
3559 ❼SimAnt... 35 8266 ❼SimEarth 1.1 .. 40.
4966 SimCity *(CP)* .. 29. 5871 ❼Supreme .. 47.
**★Centron Software ... 30 day MBG**
2707 ❼Puzzle Master.................................. 26.
8525 ❼Casino Master... 39. 8524 *(Color)*.... 45.
**★Cyan ... 30 day MBG**
6320 ❼Manhole 1.6.......................................... 19.
**★Davidson & Associates ... 30 day MBG**
3922 ❼Talking Spell It Plus.......................... 29.
7024 ❼Headline Harry & the Great Paper Race 34.

**★ALSoft ... 30 day MBG**
9807 ❼*DiskExpress II 2.11*—The world's safest, most powerful disk optimizer that gives you all the speed you need. Only DiskExpress II intelligently monitors daily activity for personalized hard disk optimization.................. **$49.**

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8278 ❼Alge-Blaster Plus ............................... 34.
**EARTHQUEST**
8050 ❼EARTHQUEST or 3118 ❼Ecology 1.0 34.
**Electronic Arts**
5702 4D Boxing.... 32. 1907 ❼PGA Golf... 39.
**★Expert Software ... 30 day MBG**
6219 ❼Expert Astronomer 1.0........................ 29.
**Graphic Simulations**
4756 ❼Hellcats Over the Pacific 1.0 ............. 39.
**★Great Wave ... 30 day MBG**
6693 ❼KidsMath 2.0 *(Color)* ......................... 35.
4334 ❼NumberMaze .. 25. 8527 ❼*(Color)*. 35.
**★HyperGlot Software ... 30 day MBG**
❼Word Torture 4.0 -.Beginner to Advanced *(Span., Fren., Germ., Ital., & Rus.)*... *ea.* 34.
❼Pronunciation Tutor - Beginner *(Span., Fren.) ea.* 34. *(Germ., Chin.) ea.* 38.
❼Tense Tutor 2.0 *(Spanish, French, German, Italian)*.. *ea.* 38.
**★Inline Design ... 30 day MBG**
1562 ❼3 in Three or 1944 ❼Swamp Gas. *ea.* 31.
8809 ❼Tesserae 31. 3414 ❼Mutant Beach 43.
**Interplay Productions**
1894 ❼BattleChess *(3D animation)*................ 29.
1893 ❼CheckMate *(infinite play levels)*.......... 31.
**★Learning Company ... 30 day MBG**
2670 ❼Reader Rabbit 3.0 *(CP) (ages 4-7)*..... 34.
3687 ❼Super Solvers: Midnight Rescue! ....... 34.
3281 ❼The Writing Center 1.0 ...................... 51.
**★Leister Productions ... 30 day MBG**
7126 ❼Reunion 3.0 ........................................ 115.
**Mallard Software**
❼Scenery Disk 1-4 Flight Simulator. *ea.* 19.
**★MECC ... 30 day MBG**
3963 ❼Oregon Trail 1.0................................ 28.
❼Number, Word, or Super Munchers *ea.* 28.
**★MicroMaps ... 30 day MBG**
2784 ❼KidMaps 1.0......................................... 16.
**★Microsoft ... 30 day MBG**
2868 ❼Flight Simulator 4.0 *(CP)*.................. 42.
**★Nordic Software ... 30 day MBG**
8258 ❼Turbo Math Facts 2.0 ......................... 24.
8257 ❼PreSchool Pack - Color 1.0 ............... 34.
**★Penton Overseas ... 30 day MBG**
❼VocabuLearn/ce Levels I & II *(Span., Fren., Germ., Ital., Rus., Japan., & Heb.)*... *ea.* 35.
❼VocabuLearn/ce Level III *(Span., Fren., Germ., Ital., Rus., & Japan.)*............ *ea.* 35.
**★Personal Training Sys. ... 60 day MBG**
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**Sierra On-Line**
3545 ❼EcoQuest *(June '92)*.......................... 35.
3552 ❼Leisure Suit Larry V.......................... 39.
**★SoftStream ... 30 day MBG**
4489 ❼Galactic Frontiers ............................. 38.
**Software Toolworks**
4619 ❼Mavis Beacon Typing 1.3 *(CP)*.......... 32.
**★Spectrum Holobyte ... 30 day MBG**
3464 ❼Tetris 1.3.. 22. 3017 ❼Wordtris 1.0 . 27.
3459 ❼Falcon 2.2.1 or 8181 ❼Vette 1.0 ... *ea.* 33.
**★Strategic Studies ... 30 day MBG**
3287 ❼Warlords *(empires at war)*.................. 34.
**StudyWare**
❼ACT, GMAT, GRE or SAT Prep ... *ea.* 29.
**★TeleTypesetting ... 30 day MBG**
5537 ❼Digital Gourmet 1.0........................... 44.

**MicroMat Computer Systems**
3732 ❼*MacEKG II*—Provides in-depth knowledge on what makes your Mac tick. Features: advanced component-level diagnostics, log & compare 178 different parameters, ability to isolate/diagnose intermittent failures.... **$110.**

**Terrace Software**
9970 ❼Mum's The Word Plus 1.01 *(color)*... 107.
**★Toyogo ... 30 day MBG**
7624 ❼NEMSIS Go Master 5.0...................... 39.
7623 ❼NEMSIS Go Master Deluxe 5.0.......... 99.
**★Voyager ... 30 day MBG**
2809 ❼The Annotated Alice, 2836 ❼Hitch Hiker's Guide to Galaxy, 2820 ❼Jurassic Park *ea.* 15.

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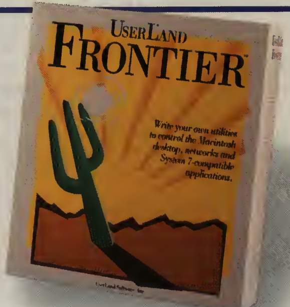
**★Ars Nova ... 30 day MBG**
1215 ❼Practica Musica 2.3 .......................... 66.
**Coda Music Systems**
8188 ❼MusicProse.. 189. 5604 ❼Finale ... 549.
**★MacroMedia ... 30 day MBG**
4598 ❼MacRecorder Sound System PRO... 239.
5087 ❼MacroMind Director 3.1 *(June '92)*... 799.
2246 ❼MacroMind Three-D 1.0................... 999.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5021 MultiSync 6FG.................................. 2899.
**★Nutmeg Systems ... 30 day MBG**
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❼20" Color System: SE/30, II, IIsi *ea.* 2595.
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2244 System 7 Video . 9. 2245 w/Lon's Book 25.
**RasterOps**
9784 RasterOps 24SX .. 649. 8944 24STV 829.
**Sigma Designs**
6944 Power Portrait *(platinum)*.................... 769.
**Software Toolworks**
5201 The Miracle *(piano teacher)* ............... 349.
**Sound Source**
3547 ❼Star Trek: The Logical Collection ....... 29.
3607 ❼Star Trek: The Final Frontier .............. 29.
4920 ❼Star Trek: The Bundle *(I gotta have both!)* 49.
**★SuperMac Technology ... 30 day MBG**
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4720 21" Platinum Two-Display ................. 1099.
1877 Spectrum/8LC or 2026 S/8si ......... *ea.* 536.
1844 Spectrum/8 Series III 536. 1851 /24 Series III 1525.
2330 Spectrum/8•24 PDQ or 2231 PDQsi *ea.* 899.
**★Voyager ... 30 day MBG**
3924 ❼Shubert: "The Trout" Quintet CD ........ 39.
9322 ❼Voyager Videostack CD 2.2 ............... 65.

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**Broderbund**
3730 ❼Just Grandma and Me *(CD-ROM)*...... 34.
**CD Technology**
2321 CD-ROM Caddy ... 11. 2533 *(5 Pack)* 49.
8057 Porta Drive CD-ROM.......................... 579.
**★Cyan ... 30 day MBG**
2717 ❼Cosmic Osmo 1.1 *(CD-ROM)*............. 37.
**★Discovery Systems ... 60 day MBG**
9967 ❼Nautilus *(subscription,CD-ROM)* ........ 20.
6823 ❼Best of MIDI Connection...................... 32.
3683 ❼Backpac Set 1 or 3679 ❼Set 2..... *ea.* 45.
**★Ergonomic Software ... 30 day MBG**
7056 ❼Panoramix Vol. 1 *(CD-ROM)*.............. 69.
**★Highlighted Data ... 30 day MBG**
7771 ❼Webster's Dictionary *(CD-ROM)*....... 159.
6968 ❼Footage '91 *(CD-ROM)* ..................... 159.
**★HyperGlot ... 30 day MBG**
7473 ❼Learn to Speak French or 7829 Spanish 62.
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6577 CDR-37 CD-ROM Portable Drive...... $399.
6826 General Reference CD-ROM Bundle.. 529.
6582 CDR-74 CD-ROM Drive ..................... 589.
**Software Toolworks**
4397 ❼Time Table of History *(CD-ROM)*....... 57.
3915 ❼Grolier Encyclopedia *(CD-ROM)*...... 249.
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3917 ❼A Silly, Noisy House CD.................... 39.
3918 ❼Baseball's Greatest Hits CD.............. 49.

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7073 ❼Macintosh PC Exchange .................... 69.
7101 ❼AppleTalk Remote Access .............. 165.
7102 ❼AppleShare 3.0................................ 999.
**★Applied Engineering ... 30 day MBG**
8362 ❼QuadraLink *(with AE Shadow)* ......... 205.
**★CE Software ... 60 day MBG**
8066 ❼QuickMail *(5 user)* 249. 8067 *(10)*. 375.
**★CompuServe ... 60 day MBG**
1676 ❼Macintosh Membership Kit 1.6 ........... 25.
1673 ❼CompuServe Navigator 3.1 ............... 49.
1674 ❼Membership Kit/Navigator Bundle...... 72.

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7085 ❼*FileGuard 2.7*—Protect your hard drives, applications, file/folders (including System folder) from unauthorized access, deletion, and/or illegal copying ........... **$138.**
7422 ❼*(5 user)*.. **479.** 7423 ❼*(10 user)*.. **799.**

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4842 ❼MacLink Plus/Translator 6.0 ............. 109.
**★Dayna ... 60 day MBG**
DaynaPORT TRX: *(BNC or 10 BASE-T) ea.* 87.
DaynaPORT E: *(10BASE-T)* .......... *ea.* 149.
DaynaPORT E: SE, SE/30 II, IIsi, LC... 149.
8719 EtherPrint 345. 9888 *(10BASE-T) ea.* 339.
DaynaPORT SCSI/Link *(BNC or 10 BASE-T)* 269.
3664 NetMounter............................................. 57.
**Dove Computer**
6758 ❼DoveFax 2.0 .. 199. 3352 NuBus 229.
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6273 PhoneNET StarConnector 10-Pack .... 129.
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2206 PhoneNET StarController 307............. 879.
4802 Star 357... 1025. 4814 Star 377 ... 1299.
9961 PhoneNET Card PC ........................... 209.
**★Freesoft ... 60 day MBG**
6115 ❼White Knight 11 .................................. 85.
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8945 ❼TelePort/FAX 1.06 ............................ 169.
5327 ❼TelePort/Full FAX 2.0 ........................ 219.

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2300 ❼Smartcom II for the Mac 3.3B............. 84.
1345 OPTIMA 24 Modem 155. 3522 96 Mod. 389.
**Insignia Solutions**
7557 ❼Access PC 2.0 .................................... 60.
9726 ❼Entry Level SoftPC 2.5 ...................... 125.
4089 ❼Universal SoftPC 2.5 ......................... 195.
3229 ❼SoftAT 2.5............................................ 299.
**Logicode Technology**
5525 Quicktel Xeba M9624XV ...................... 185.
5524 Quicktel Xeba M9696XV ...................... 399.
5523 Quicktel Xeba M1414XV ...................... 439.
**★Lotus Development ... 30 day MBG**
7121 ❼cc:Mail Macintosh Platform Pack 2.0 449.
**MASS Microsystems**
3655 MASS fm 24/96 *(portable modem)*...... 185.
**★Microcom ... 30 day MBG**
7459 ❼CarbonCopy Mac 2.0 *(single)*............. 59.
**★Microsoft ... 30 day MBG**
9444 ❼Microsoft Mail 3.0 *(1-5 user)*............. 269.
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8994 2400 V.42bis Modem ............................ 125.
7934 PM9600SA Modem 1.26 ...................... 289.
9849 ❼SmartPack 9600 *(with Smartcom II)*. 349.
**★Prometheus ... 30 day MBG**
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3413 ❼ System 7 Group Upgrade Kit...... 259.

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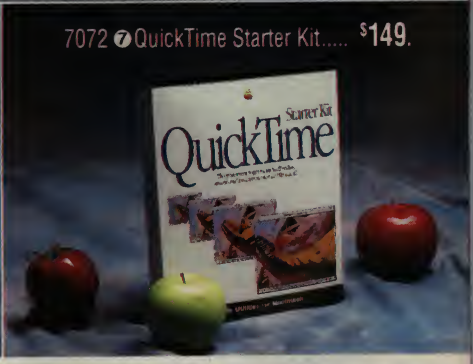

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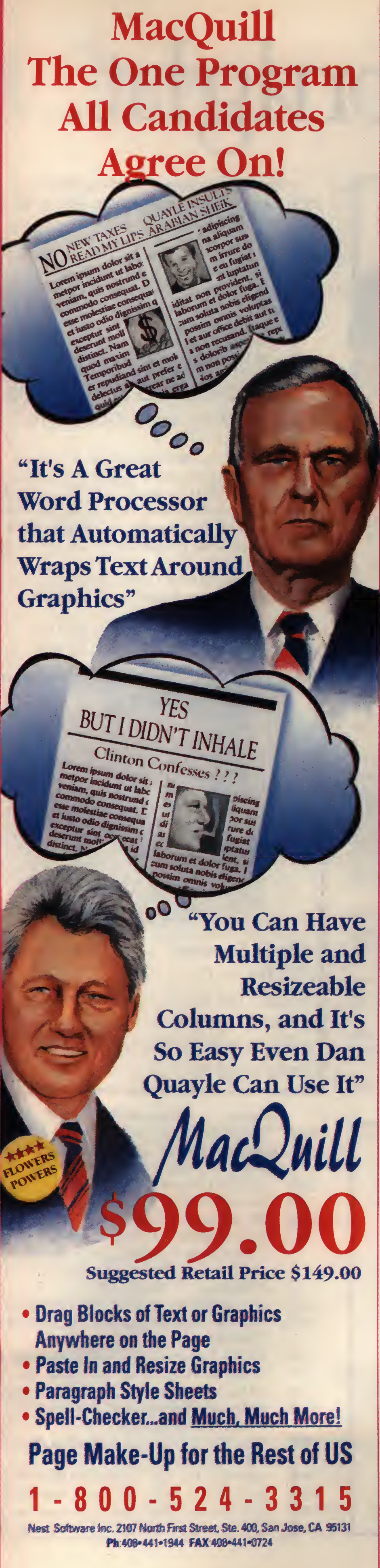

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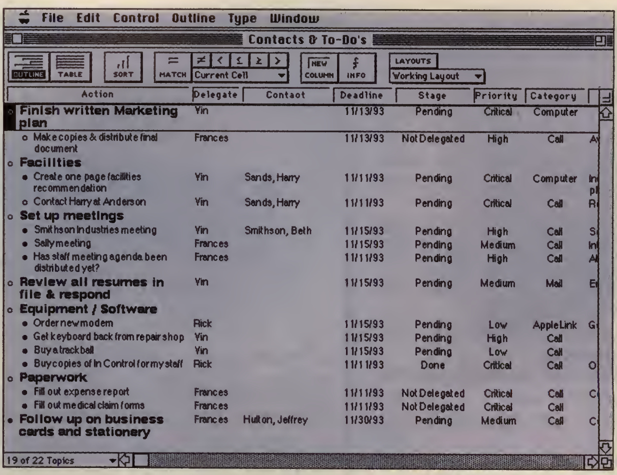

| Action | Delegate | Contact | Deadline | Stage | Priority | Category |
|---|---|---|---|---|---|---|
| Finish written Marketing plan | Yin | | 11/13/93 | Pending | Critical | Computer |
| o Make copies & distribute final document | Frances | | 11/13/93 | Not Delegated | High | Call |
| o Facilities | | | | | | |
| • Create one page facilities recommendation | Yin | Sands, Harry | 11/11/93 | Pending | Critical | Computer |
| o Contact Harry at Anderson | Yin | Sands, Harry | 11/11/93 | Pending | Critical | Call |
| o Set up meetings | | | | | | |
| • Smithson Industries meeting | Yin | Smithson, Beth | 11/15/93 | Pending | High | Call |
| • Sally meeting | Frances | | 11/15/93 | Pending | Medium | Call |
| • Has staff meeting agenda been distributed yet? | Frances | | 11/11/93 | Pending | High | Call |
| o Review all resumes in file & respond | Yin | | 11/15/93 | Pending | Medium | Mail |
| o Equipment / Software | | | | | | |
| • Order new modem | Rick | | 11/15/93 | Pending | Low | AppleLink |
| • Get keyboard back from repair shop | Yin | | 11/15/93 | Pending | High | Call |
| • Buy a trackball | Yin | | 11/15/93 | Pending | Low | Call |
| • Buy copies of In Control for my staff | Rick | | 11/11/93 | Done | Critical | Call |
| o Paperwork | | | | | | |
| • Fill out expense report | Frances | | 11/11/93 | Not Delegated | Critical | Call |
| • Fill out medical claim forms | Frances | | 11/11/93 | Not Delegated | Critical | Call |
| • Follow up on business cards and stationery | Frances | Hulton, Jeffrey | 11/30/93 | Pending | Medium | Call |

**In Control resembles outlining software but with the added dimension of multiple columns. Columns serve as fields that contain detailed information about to-do-list topics. You can use sorts and searches to create different views of your list.**

Control lacks an auto-formatting feature. You can change type styles and fonts for a single column, for all columns, or for a selected range of rows, for example. As with a spreadsheet, you can also change column width, order, textual alignment, and data format (text, number, date, or time). You can save specific column arrangements as layouts, so you can have one layout for data entry and another for printing, for example. However, you can't share the same layout among different tasks.

In Control's powerful Match and Sort commands go far beyond those found in most outliners. Matches entail searches, and you can use any column title, value, and type of match (Equals and Is Greater Than, for example) to set up your search criteria. If you've created a priority column in your outline, you can search and sort information according to Critical, High, Medium, and Low values. By combining In Control's Match and Sort commands, you can view your data in just about any fashion.

### What's Missing

In Control's sorting and matching flexibility is a key feature, because it determines what you can print. With In Control, what you see is what you get. Unlike the traditional outliner Acta, for example, In Control doesn't give you any printing options beyond what you see on-screen. As a result, you can't opt to print all topics, including those that have been collapsed. You also aren't able to insert manual page breaks after each major topic, which makes it difficult to use In Control as a slide-creation tool for presentations (a common use of traditional outlining software). The program also lacks a print-preview feature. Given that the only major drawback to In Control is its lack of flexible printing options, we hope that the next version will correct this limitation.

Weighing in at 427K, In Control is forced to play the role of a full-blown application. For the future, we'd like to see a stripped-down DA version of In Control for System 6 users who aren't running MultiFinder and for users of limited-memory machines such as PowerBooks.

### The Bottom Line

If you're adept at using traditional outlining software, you'll take to In Control instantly. However, In Control goes one step beyond other outlining programs with its use of columns. Using the columns, you can create categories that allow you to attach detailed information to each outline topic. Then, using the program's powerful Sort and Match features, you can view the data in your outline in a variety of ways. No matter how complicated your to-do list is, In Control can help you manage it.

— Becky Waring

## Get Info

**In Control**
$$$$½
**Published by:** Attain Corp., 48 Grove Street, Somerville, MA 02144; 617-776-1110.
**Version:** 1.0.
**List Price:** $129.95.

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GRAPHICS & DESIGN

# Ofoto

**Light Source's innovative software makes one-step gray-scale scanning a reality.**

Ofoto claims to be one-step scanning software that eliminates the frustration of rescanning, fiddling with controls, and doing painstaking image editing. Initially we were skeptical, but we soon discovered that Ofoto fulfills its promises and more. Originally bundled with Apple's OneScanner, this powerful gray-scale-scanning software is now available as a stand-alone product from its creator, Light Source, so owners of most other scanners can also take advantage of Ofoto's considerable capabilities.

### Custom Calibration

Ofoto is an absolute joy to use. The program buries a tremendous amount of power and sophistication beneath its clean and simple interface. The first step in harnessing Ofoto's power is to create a custom calibration for your printer. This takes about 10 to 15 minutes, but the process is a breeze — the program guides you with instructive dialog boxes every step of the way. You may be tempted to forgo this procedure and settle for one of the program's generic calibrations for output devices such as a LaserWriter or a Linotronic. Our advice is — don't. Custom calibration makes a discernible difference in output quality.

You can create calibrations for every printer in your office and access them easily from Ofoto's pop-up menu. When you select a calibration, Ofoto finds all the information it needs about dpi, screen frequency, and the like for a particular printer, so it can produce the best scan of an image. Calibrations are easy to exchange among different versions of Ofoto by exporting and importing.

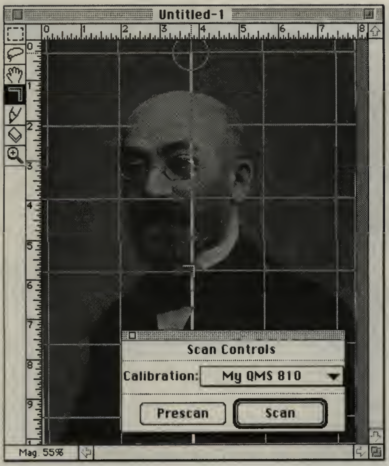
The scanning process is pretty much a one-step affair once you've created the calibrations and selected one for the current session. You simply click on the Autoscan button, and Ofoto handles the rest — the software determines the type of graphic (line art or photograph), scans and sharpens the image with settings specific to the printer calibration, automatically straightens the image if it's skewed, and crops unnecessary white space. You don't have to know anything about lpc (lines per centimeter), bit depth, or any other scanning arcana. At this point, you can also resize or crop images, but in most cases, all you need to do is save them as EPS, PICT, TIFF, or MacPaint files. The program also supports LZW and QuickTime compression schemes (the QuickTime extension is bundled with the software).

If you ever want to bypass Ofoto's automatic scanning features, you can choose Expert Controls, which adds manual controls to the Scan Controls window. However, Ofoto is so good on autopilot that it's unlikely that even advanced users will want to bother with Expert Controls.

Once your image has been scanned, you'll find that Ofoto's editing tools are minimal — Photoshop it's not. The few tools it does provide (eraser, pencil, selection, rotate, grabber, zoom) are useful and enhance the program's power. For example, when you use the straighten tool to rotate an image, the program provides a grid for alignment.

Ofoto features templates that preserve window positions, slider settings, and the current calibration. It also provides controls for brightness and contrast, but again we predict you'll seldom need to use them, given the program's intelligent image handling.

Ofoto's single imperfection is its installation process. It took us three attempts to install the software properly. First, we encountered a problem with Symantec's SAM, even though it was inactive. Removing the antivirus software from the System Folder solved that problem. Then we experienced a conflict between the HP Scanner driver, which Ofoto places in the Extensions folder during installation, and a version of the same driver placed in the System Folder by another program. Ofoto wouldn't operate with both copies lurking in the system. The last problem occurred when we updated the system software from version 7.0 to 7.01 — Ofoto stopped functioning altogether



Calibration: My QMS 810

**Ofoto represents a breakthrough in gray-scale-scanning software. Its easy-to-use calibration setup lets you customize the scanning process for your printer, giving you the best possible results automatically with the first scan.**

until we went back to System 7.0.

Ofoto has a surprisingly modest appetite for hardware and memory — it can even run on a Mac Classic with System 6.07 or later and 1 megabyte of RAM. Ofoto supports scanners from Abaton, Apple, Epson, Hewlett-Packard, Microtek, AVR, and Panasonic.

### The Bottom Line

When it was initially released as part of Apple's OneScanner bundle, Ofoto won the 1991 *MacUser* Editor's Choice Award for breakthrough technology of the year. An innovative mix of power and simplicity, the program far surpassed any other scanning software available at that time. Its new status as a stand-alone product allows users of other scanners to reap the considerable benefits of Light Source's revolutionary gray-scale-scanning technology.

— Gregory Wasson

## Get Info

**Ofoto**

🐁🐁🐁🐁🐁

**Published by:** Light Source, 17 E. Sir Francis Drake Blvd., Suite 100, Larkspur, CA 94939; 415-461-8000.

**Version:** 1.1.1.

**List Price:** $395.

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VIDEO

# Video F/X

## Video F/X takes you over the hurdles of producing professional-quality videotapes with a Mac.

The most difficult aspect of producing and editing high-quality videotapes with a Mac is figuring out what equipment you need and how to tie it all together. Video F/X provides a pricey but complete desktop-video hardware/software package — all you supply is the video decks.

### Direct to Videotape

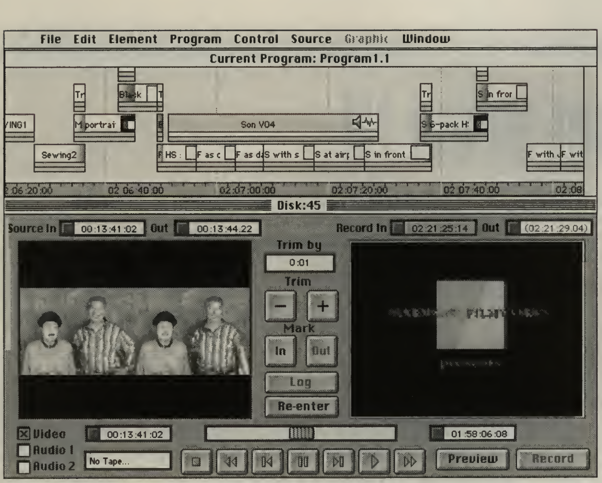
Although all the hoopla surrounding Macintosh-based movie-making is currently centered on Apple's digitally oriented QuickTime, QuickTime videos are neither full-frame nor full-motion. So for now, QuickTime is geared toward movies that are played on Macs. However, for those who are interested in using videotape as their source and as their final output medium, the frame-accurate Video F/X analog desktop-video-production system is an excellent choice. It provides a relatively painless way to assemble video, audio, graphics, and transitions and to output the results to high-quality videotape.

Video F/X hardware comprises a black box about the size of a Mac II that uses a NuBus card to connect to your Mac, which means you'll need a Quadra or a member of the Mac II family. The box contains hardware for controlling as many as three video decks (Video F/X supports most industrial and professional models) as well as an audio mixer, a video switcher, an encoder that turns Mac video into TV video, and a built-in time-code generator.

For this review, in conjunction with the Video F/X system, we used a Sony Hi-8 and two Panasonic SVHS video decks and a time-based corrector (video hardware that synchronizes video signals for glitch-free transitions). The price tag for all this equipment, excluding the cost of our Mac IIfx, was about $20,000.

Digital F/X, maker of Video F/X, provides an invaluable HyperCard-based setup stack that helps you figure out how to plug in the various hardware pieces correctly. The company's helpful and friendly technical-support staff is also available to answer any questions you may have.

The Video F/X desktop-video-production system, a blend of hardware and software, is an excellent but pricey solution for producing professional-quality videotapes on a Mac.



Current Program: Program1.1

Disk:45

Source In 00:13:41:02 Out 00:13:44.22

Record In 02:21:25:14 Out (02:21:29.04)

Trim by 0:01

00:13:41:02

01:58:06:08

The Video F/X software makes good use of the Mac's interface. Here, a time-line window (top) displays video clips in linear sequence. The window at lower left displays the source clip or graphic, and the window at lower right displays a preview of the final video.

The Video F/X software provides a friendly Mac interface for tasks such as logging video clips, making editing decisions, creating transitions, and adding graphics and titles. Because the software supports Adobe's PostScript, you can import fonts and EPS graphics and overlay them onto videos. The software also provides a basic drawing environment for creating backgrounds and titles from within Video F/X.

The Video F/X system is designed to accomplish two main tasks: log video clips and create the final EDL (edit decision list), which tells the system how to assemble all the elements that make up your video (when to fade in from black, when and where to add graphics and titles, which transitions to use where, and so on). Once that's done, the system automatically creates a master videotape with the EDL to retrieve and record the clips, graphics, audio sequences, and other elements in the order you've specified.

Whenever you log a video clip, Video F/X creates a reference to the videotape source and to the in and out points for the clip. You can name clips and add text comments of any length. A simple database engine helps the system find and retrieve clips (you can also export clip logs to a database for more-powerful archiving). With Video F/X keeping track of all the elements of your video, it's easy to return to the source material to make any changes. Video F/X also lets you digitize logged clips to your hard disk, so you can retrieve them faster.

After logging clips, you assemble them — along with graphics, titles, and other video elements — into an EDL. The final step is auto-assembly of your videotape — Video F/X runs through the EDL, instructs you to load the various source tapes at the appropriate times, and records a master tape. You can also export EDLs to high-end editing systems and assemble your videotapes on broadcast-quality equipment.

Digital F/X also provides Soft F/X, a $995 software-only version of Video F/X that lets you edit videos off-line, using a hard drive and your Mac without video hardware. However, you must first digitize the video through a Video F/X system. Using Soft F/X is a convenient way to produce an EDL quickly and inexpensively, but you'll need a high-capacity hard drive.

### The Bottom Line

Although the setup required for producing and editing videotapes with Video F/X is pricey, the system is a time-saver compared with traditional means. If you're in the market for an intuitive, well-documented video-production system that harnesses the power of the Mac to create corporate videos or sales presentations, Video F/X is worth every dollar.

— Paul Yi

**Get Info**

**Video F/X**

$$$$½

**Manufactured by:** Digital F/X, Inc., 755 Ravendale Drive, Mountain View, CA 94043; 415-961-2800.

**List Price:** $9,995.

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DRAWING

# CA-Cricket Draw III

**A few defects aside, CA-Cricket Draw III is a solid entry-level drawing tool with some surprisingly powerful features.**

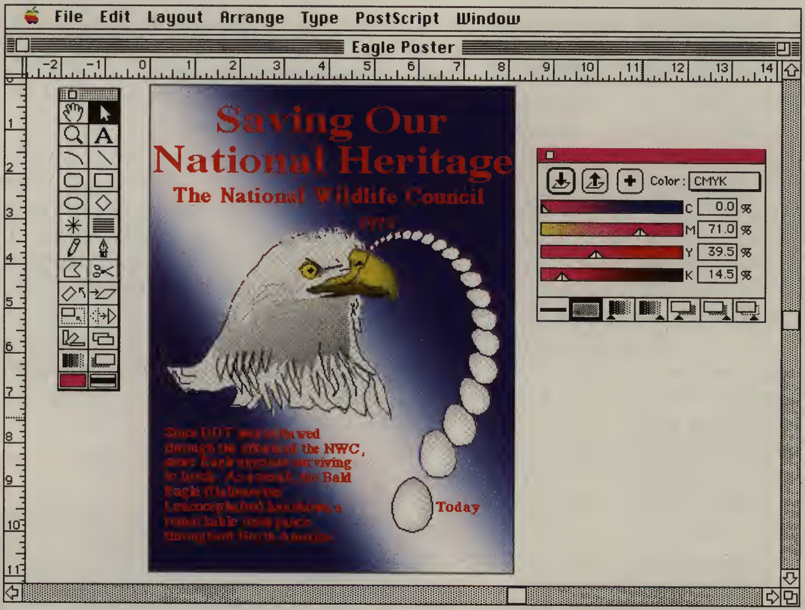
If you're looking for an inexpensive entry-level drawing program, the long-awaited CA-Cricket Draw III may be just the ticket. Several of its PostScript drawing tools rival those of more-expensive illustration programs, and its fountains (gradients) and color controls are exceptional. However, the program suffers from several serious gaps in its feature list.

### Finely Tuned Controls

Cricket Draw's chief strength lies in its ease of use and the control it provides for manipulating objects. Its fountain-customizing controls are particularly outstanding: You can set two-color blends to be linear or radial or to be fitted to or echo the shape of an object. You can also set custom steps for irregular progressive and double blends with a Bézier control.

Cricket Draw lets you specify only two colors for fountains, unlike Claris' MacDraw Pro, which lets you specify as many as three colors, or Aldus' SuperPaint 3.0, which allows an almost unlimited number. By setting a fountain to cycle through HLS (hue, lightness, and saturation) values (around the perimeter of the standard Mac color picker), however, you can achieve multicolor blends, but you can't specify individual transitional colors. Cricket Draw also lets you create 3-D shadows composed of fountains for just about any object.

Although Cricket Draw's fountains are good-looking, one caveat is that you must display them at the highest resolution possible to get them to print smoothly. Displaying an image with numerous high-resolution 24-bit fountains can bring even a Quadra to its knees, so plan to take long coffee breaks



Color: CMYK
C 0.0 %
M 71.0 %
Y 39.5 %
K 14.5 %

In addition to a solid set of PostScript drawing tools, CA-Cricket Draw III features outstanding fountains and an interactive color window that displays the results of using sliders to set color component values. However, its lack of support for an editable PostScript file format severely limits its interaction with other drawing programs, and its interface suffers from several quirks.

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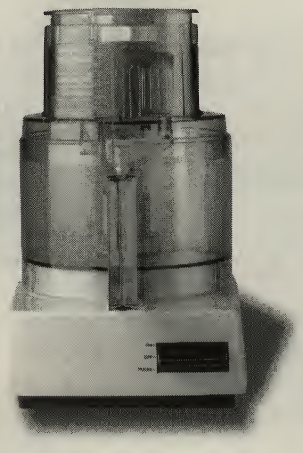

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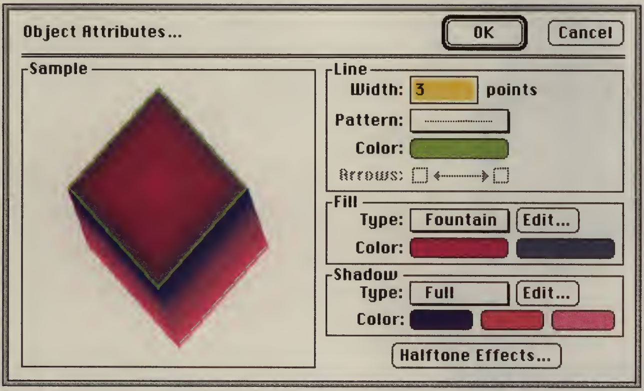


Width: 3 points
Pattern:
Color:
Arrows: ☐ ←——→ ☐
Type: Fountain Edit...
Color:
Type: Full Edit...
Color:

**CA-Cricket Draw III provides extensive and easy-to-use controls for modifying object attributes.**

if you intend to use 24-bit color. Fortunately, Cricket Draw's screen redraws *are* interruptible.

The floating color window lets you select a color for most elements (lines, drop shadows, fills, and so on) of a selected object. Like that of many other programs, Cricket Draw's color window has sliders for setting values for color components based on the selected color model (RGB, CMYK, or HLS, for example). However, Cricket Draw goes one step further and displays color ramps by each slider that show the effects on the current color as you move the slider.

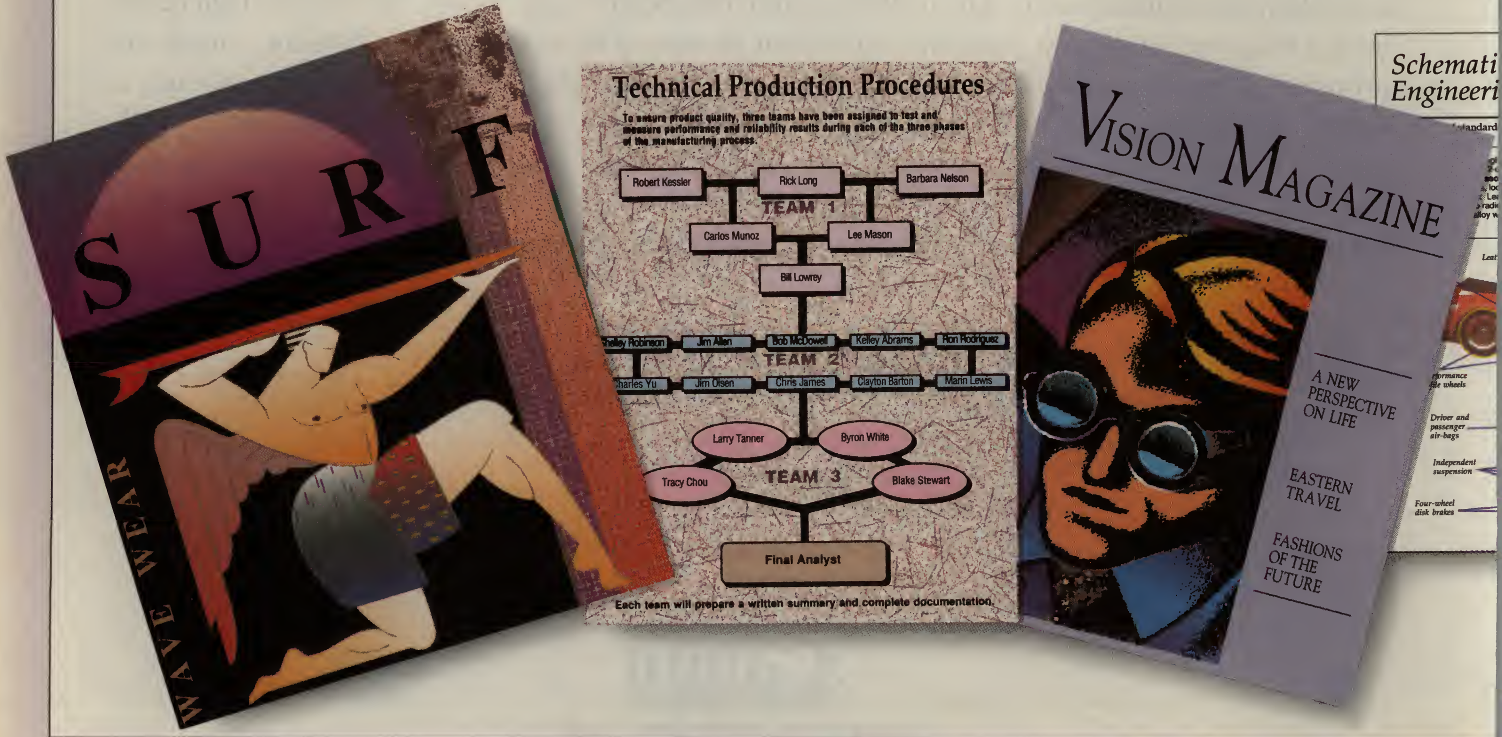
### Pen Pal

In addition to the familiar drawing tools for creating straight lines, arcs, rectangles, and irregular polygons, Cricket Draw provides a pen tool for creating and editing Bézier curves that's as good as any of the pen tools offered by other drawing packages, including Illustrator and FreeHand. The pen's excellent design makes good use of Option-clicking and Option-double-clicking on anchor and control points, so you can easily convert tangent points into corners on the fly. You can also use Cricket Draw's freehand drawing tool to extend lines you've created with the pen tool and vice versa.

Cricket Draw provides a full range of manipulation tools for skewing, rotating, and reflecting objects, and it has a Transform command, which lets you apply transformations gradually as you create multiple copies of an object. This powerful feature is particularly valuable, given Cricket Draw's inability to create blends between two or more selected objects.

By allowing objects to act as either stencils or hole punches, Cricket Draw greatly simplifies the task of masking

It's a graphics program. It's a business program. Is not.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and creating compound objects. In addition, the program's unique Align Objects command lets you decide whether object borders are to be aligned with respect to either their centers or their edges.

### That's Odd

Despite these strengths, Cricket Draw's interface suffers from some oddities. For example, you must select an object before double-clicking on the tool you want to use with it. In addition, the program lacks support for multiple drawing layers, and some aspects of its text handling are disappointing. It provides sophisticated paragraph-level formatting, but you can't link text from box to box or wrap it around or inside objects. You can set leading, character spacing, indents, superscripts and subscripts, and tab stops as well as kerning pairs or ranges of characters, but you can't apply blend fills to text or convert text into outlines. You can bind text to a path, but you can't see bound text on-screen — you must print the document to see the text. In addition, formatting information such as kerning is disregarded for bound text. Three-dimensional shadows are supported, however.

Another problem is the limited nature of Cricket Draw's interaction with other programs. It can import and export EPS and PICT files, but because it lacks support for an editable PostScript format, you can't edit EPS files imported from other programs or edit EPS files exported from Cricket Draw. In addition, although you can specify process colors, Cricket Draw can't separate them. To separate colors, you must save files in EPS format and print them from another application that supports color separation.

### The Bottom Line

With a list price of $249, CA-Cricket Draw III is a bargain if you're in the market for your first drawing program. Its PostScript drawing tools and some interface elements are first-rate, and the fountains and 3-D shadows let you create sophisticated and unique effects (if you don't mind lengthy screen redraws).

However, if you require professional-level features or already own Canvas, Illustrator, or FreeHand, you probably won't need Cricket Draw, considering its lack of support for multiple layers, the limitations on its interaction with other PostScript drawing programs, and its inability to convert text to outlines.

— Eric Taub

## Get Info

**CA-Cricket Draw III**

**Published by:** Computer Associates International, Inc., One Computer Associates Plaza, Islandia, NY 11788; 516-342-5224.

**Version:** 1.0.

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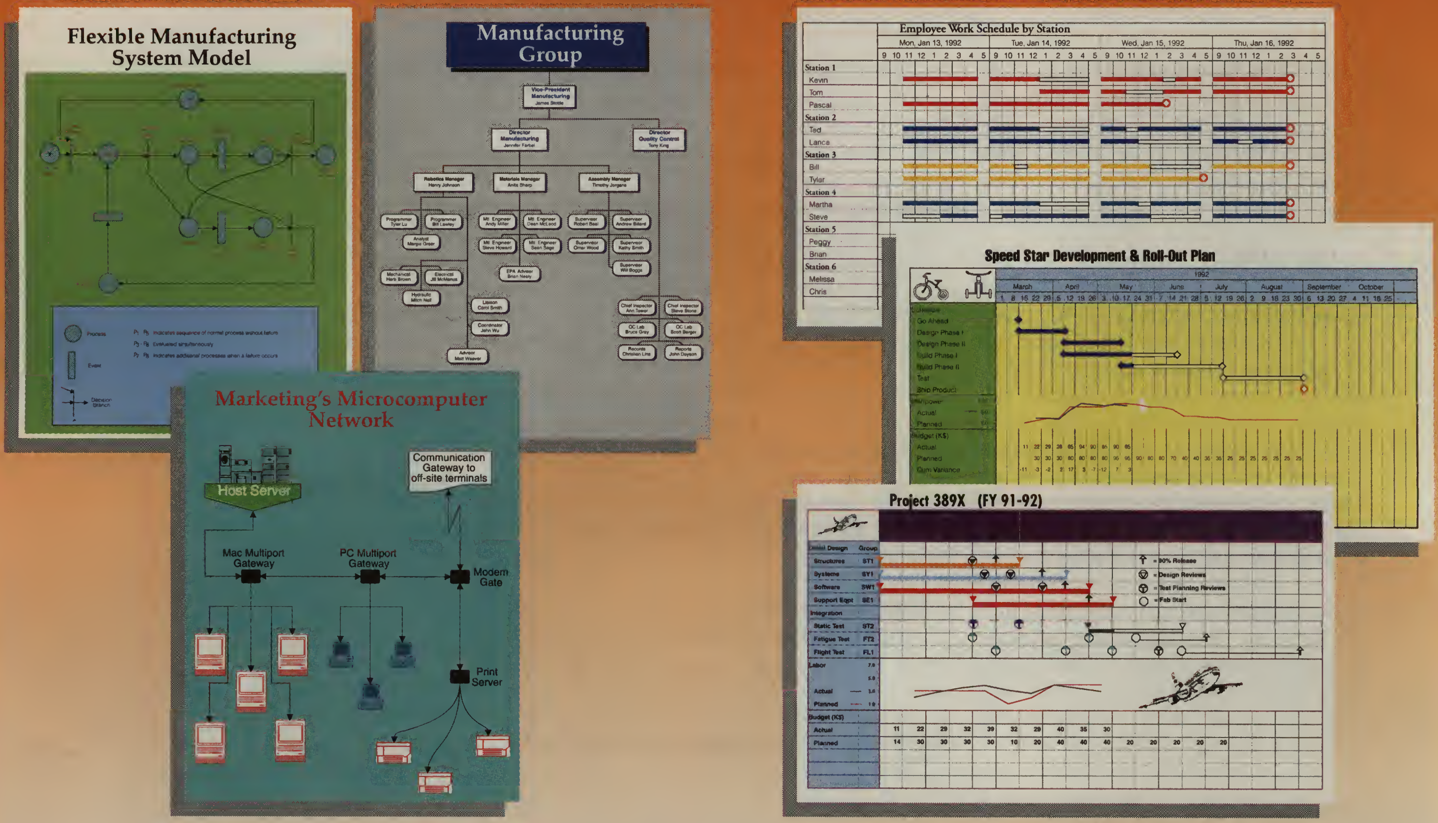
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## QUICK CLICKS

### Persuasion 2.1

With its recent upgrade, version 2.1, Aldus Persuasion has begun making good use of System 7's capabilities — and Aldus has added other new features to enhance Persuasion's standing as one of the top presentation programs around.

One of the most eye-catching System 7-related improvements is the ability to import QuickTime movies. You'll need the QuickTime extension (available from Apple, user groups, and on-line services); once it's installed, you can easily place movies in Persuasion slides. You import a QuickTime movie just as you would any PICT or EPS graphic. You can move, resize, copy, and paste movies and control the sound as well as the playback from within Persuasion. Publish-and-subscribe capability is another System 7-related new feature; if you import Persuasion slides into another program or presentation, they'll be updated automatically when you modify the source slides.

Additional enhancements to Persuasion include 55 new AutoTemplates and some new background masters. Some of these won't win any design awards, but others are quite professional-looking. All include a recommended color palette for those of us whose color choices tend to make people wince.

Users in cross-platform environments will appreciate the work Aldus has done to improve Windows compatibility. With some limitations, you can transfer a presentation back and forth between the Macintosh and the Windows versions of Persuasion. And by packaging the appropriate Persuasion Player with your presentation, you give others the ability to view your slides on Macs or IBM PCs or PC-compatibles without the Persuasion application.

Although all these improvements put more distance between Persuasion and its closest competitor, Microsoft PowerPoint, we'd still like to see a cropping tool, the ability to rotate text or graphics, kerning, and direct support for Pantone colors. (Fortunately, Aldus has improved its leading-specifications box, which now lets you enter point values as well as percentages.) These high-end features would give Persuasion even more of an edge for professional designers.

Aldus Corp., 411 First Avenue S., Seattle, WA 98104; 206-622-5500. Version 2.1. $495; $50 for the upgrade from 2.0.

— Shelley Cryan

### Easy Alarms

You may think the last thing you need is another Mac program that sends you pop-up reminders of impending events in your busy schedule. But Easy Alarms, with its new scripting feature, can potentially go beyond reminding and *do* what you want done at a specific time.

Easy Alarms' scripts work similarly to the way time-dependent macros do. You specify the particular functions you want your reminder to perform (for example, sending Apple events, launching applications, typing text, auto-saving your work in an application, or restarting or shutting down your Mac) and when you want them to occur. Because Easy Alarms supports Ex Machina's Notify! application, you can also write scripts for sending messages to remote pagers. Sample scripts are included with the program — an important consideration, given that the manual's coverage in this area is skimpy and assumes that its readers are familiar with concepts such as conditional branching.

In addition to scripting, Easy Alarms has a solid set of traditional reminder features, including advance notifications, a snooze button, sound attachments to reminders, flexible repeating-alarms settings, and pop-up menus for viewing reminders. New features in version 1.5 include to-do items, a single-day display window, and expanded System 7-compatible network options for accessing and editing remote calendars.

Although Easy Alarms has some scheduling capabilities, it's not meant to compete with heavyweights such as Now Software's Now Up-to-Date and Pastel Development's DayMaker. Easy Alarms' calendar view doesn't display reminder text or indicate a reminder's scheduled time. There are limited printing options, no category or priority filters, and no options for weekly or yearly calendar views. However, the $99 version 2.0, scheduled for release by the time you read this, promises to address most of these concerns with a more flexible calendar view, better reminder displays, and a wider range of printing options.

Closer competitors exceed Easy Alarms in some areas but lag behind in others. For example, Visionary Software's First Things First has category and priority filters but has no function that's equivalent to Easy Alarm's advance-notification feature. Team Building Technologies' AgentDA 2.0 has a superior calendar display but lacks to-do lists. The strongest direct challenger to Easy Alarms is CE Software's Alarming Events, which still has the best selection of reminder options but can't match Easy Alarms' scripting capabilities.

Which program is best in this category? That depends on your needs. Easy Alarms, although it has some network options, is primarily aimed at individuals who are interested in reminder alarms and simple to-do lists. For such users, Easy Alarms' unparalleled scripting options put it among the top contenders.

Essential Software, 28 Mulford Avenue, Staatsburg, NY 12580; 914-889-8365. Version 1.5.1. $59.95.

— Ted Landau

### Rise of the Dragon

1/2

The year is 2053. The air is thick with pollution. Los Angeles has entered the Age of Decay. The mayor's daughter has been murdered with a dose of bad drugs, and she isn't the only victim. The mayor needs you to save the day.

If you're a fan of sci-fi movies such as *Blade Runner,* Rise of the Dragon will knock your socks off. Hand-painted 256-color graphics and stunning animation combine with an original soundtrack for a compelling interactive experience.

You portray William "Blade" Hunter, a private investigator whose callous disregard for procedure and property rights make him the perfect candidate for this assignment. The game begins with a dramatic, movielike introduction (optional in subsequent sessions) that sets the tone for your adventure.

Rise of the Dragon uses a very satisfying point-and-click interface. You'll never see such messages as "Syntax Error" or "I don't understand that." Play involves three straightforward actions: look (Shift-click), operate (click), and move (click and drag). Innovative smart cursors provide feedback that tells you

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when you're pointing at a doorway, a person you can converse with, or an item you can zoom in on.

You travel around L.A. via the Em-Way train system — just click on a location on the Em-Way map, and you're there, ready to interview suspects or informants, search for clues, or do both. A multiple-choice interface makes conversation easier than in many other interactive games. To make things more realistic, time actually matters — offices close at night, things happen with or without Blade, and he sometimes needs some shut-eye. For physical realism, the game includes two arcade sequences in which you control Blade as he fights bad guys hand-to-hand or with weapons.

Rise of the Dragon has two annoying shortcomings. One is that the documentation assumes you're using a PC with a two-button mouse; Mac users get only a two-page Quick Reference card. A lesser annoyance is the occasional sluggish response to mouse clicks.

In spite of these shortcomings, Rise of the Dragon is one of the most impressive games we've seen recently, and its multiple story lines make it fun to play over and over. Dynamix has several other Mac titles under development; if Rise of the Dragon is any indication, they'll be well worth waiting for.

Dynamix/Sierra, P.O. Box 485, Coarsegold, CA 93614; 209-683-8989. Version 1.0. $59.95.

— Bob LeVitus

## Retriever II

The Mac flat-file-database market may be dominated by Claris' FileMaker Pro, but it still has room for a database program of the small-and-quick variety. The 200K Retriever II (which comes as both a DA and an application) attempts to fill that niche, but its interface contains some major disappointments.

In its presentation aspect, Retriever II takes the database-as-spreadsheet approach a bit too far. The row/column setup is the only layout allowed; although this is convenient for scanning several records at a time, you can't see much more than a name and a telephone number for a specific record, for example. Retriever's ability to collapse and expand columns doesn't really make up for this format restriction. Also, the program's terminology wavers between spreadsheet ("insert column") and database jargon ("add field").

The window you open to access a notes field for a given cell demonstrates the carelessness of Retriever II's interface. When the window opens, all the text it contains is highlighted, as is the OK button, but if you press Return, a Return character replaces all the text — and Undo isn't available (although a Cancel button is). You're all right if you press Enter instead of Return to choose the OK button, but you shouldn't have to deal with such a nonstandard procedure.

Even setting up your database can be awkward. A new file begins with the default number of fields (columns) you've set in the Preferences dialog box. You can add and delete columns, but once their characteristics have been set, they're set in cement. You can't change a field type (from numeric to text, say) or change formatting within a field.

On the more positive side, Retriever II has a clever telephone-dialing feature (it can automatically dial phone numbers you put in fields) and it provides icons for common commands such as Find and Sort. The Find function is nicely implemented, with pop-up menus for field names and comparison operators, but it finds only one matching record at a time; to work with a set of matching records (or any subset of records), you have to "mark" them all first and jump among the marked records.

If your database needs are limited and you're not bothered by interface inconsistency, you may want to look at Retriever II. But we're more inclined to wait for Retriever III.

Exodus Software, 800 Compton Road, Suite 9240, Cincinnati, OH 45231; 513-522-0011. Version 1.0. $109.95.

— Sharon Zardetto Aker

## 4D Draw

If you're a 4th Dimension user or application developer looking for a good drawing package, ACIUS has the answer. 4D Draw is an external module for adding object-oriented drawing capabilities to 4th Dimension databases. Although it's an add-on, it begs comparison with stand-alone applications.

4D Draw's basic tools allow you to create lines, rectangles, round-corner

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rectangles, ovals, arcs, freehand objects, and polygons. A Smooth command lets you change jagged polygons into rounder, more subtle shapes. You can also paste bit-mapped images into 4D Draw documents. To help you work with all these objects, 4D Draw lets you select them by attributes such as shape, color, fill pattern, and text characteristics.

Like CAD applications, 4D Draw lets you scale drawings by defining a drawing scale such as "1 inch equals 10 feet." An optional coordinate panel indicates objects' projected sizes and reflects size changes as you drag or stretch objects. You can also change an object's size and rotation by changing the values in the coordinate panel.

Appropriately for a 4D add-on, 4D Draw lets you display database fields in a drawing. 4D Draw also supports the 4D hot-link architecture, which lets you share graphics and data with other 4D modules. Although this architecture isn't compatible with System 7's publish-and-subscribe architecture (ideally, 4D and the modules should support both), it does provide a solid foundation for applications that mix database, spreadsheet, text, and graphics capabilities.

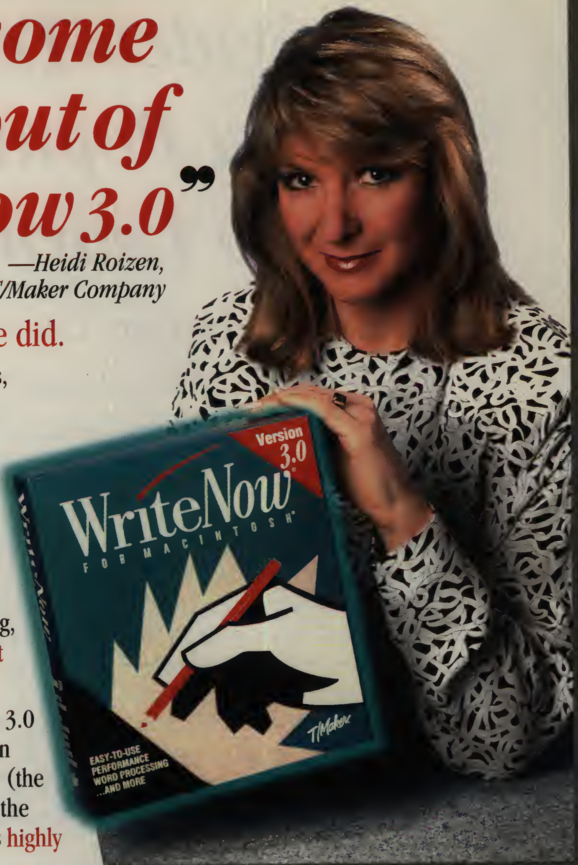
Developers will appreciate 4D Draw's more than 200 commands for creating procedures that mimic every user action — procedures users can later trigger with such actions as clicking in the draw area. Using commands, you can disable many control elements of a 4D Draw area and replace them with custom buttons and menus. You can also name objects for easy manipulation and lock object attributes such as name, color, and pattern. These features let you create graphical user interfaces that bear little or no resemblance to a drawing environment.

For additional power, you can use *binding* to connect object attributes to database fields so that changes to the fields are automatically reflected in the object and changes to the object change the corresponding fields.

Getting the best use out of 4D Draw's development options takes some practice, but the effort can pay off handsomely. We suspect that 4D Draw will be the basis for some of the most intriguing module-based 4th Dimension applications yet.

ACIUS, 10351 Bubb Road, Cupertino, CA 95014; 408-252-4444. Version 1.0. $295.

— Louis E. Benjamin, Jr.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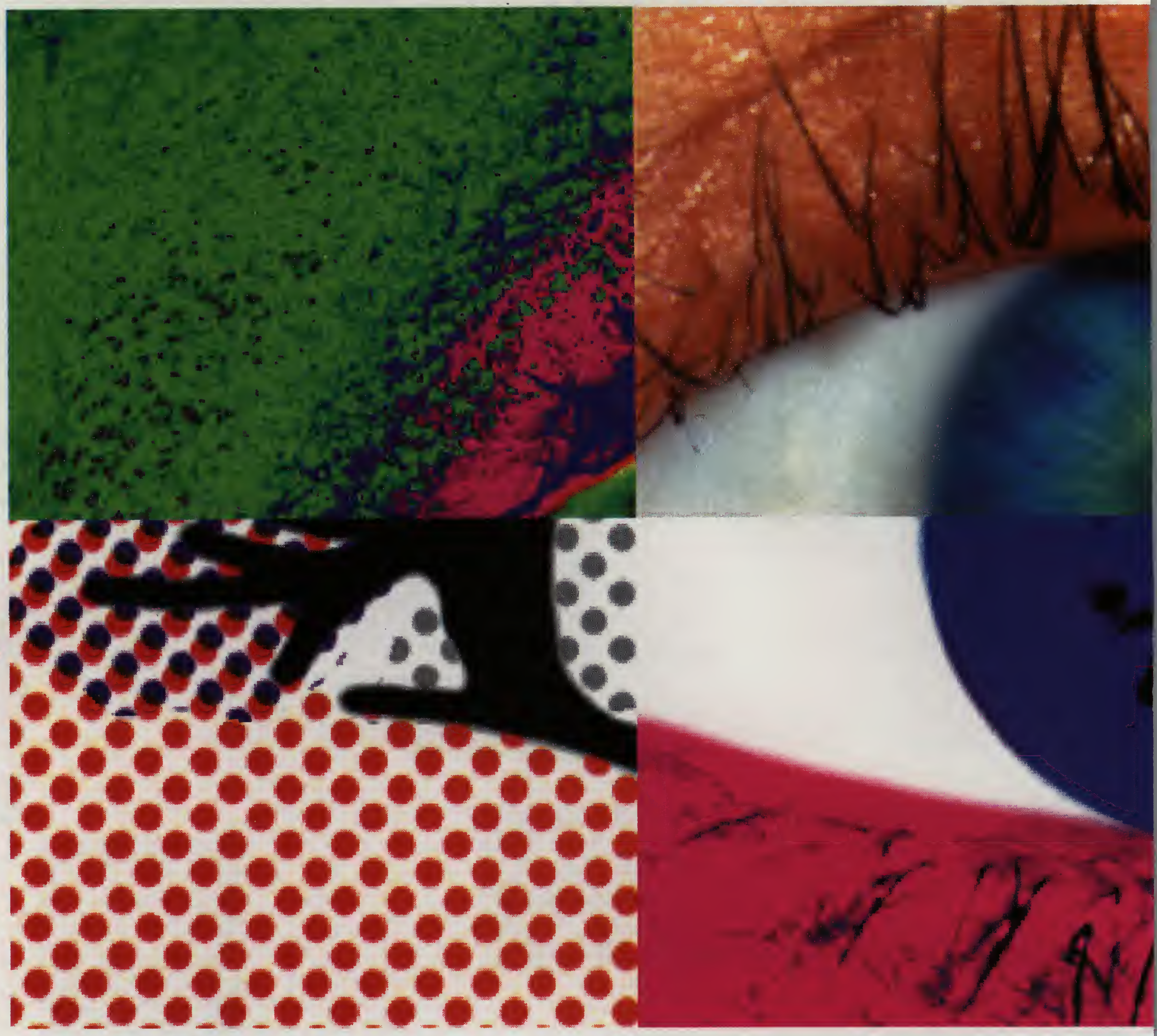

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A HyperCard stack of the entire MiniFinders database is available on ZiffNet/Mac, our CompuServe on-line service, where you'll also find access to the complete text of *MacUser* back issues. Check the Zmac page (elsewhere in this issue) for information on how to sign up.

Product prices, hardware specifications, software features, and vendor addresses change quickly. To update the MiniFinders database of reviewed products, send written notification to MiniFinders, c/o *MacUser,* 950 Tower Lane, 18th Floor, Foster City, CA 94404.

## MINIFINDER INDEX

DATA ACQUISITION & ANALYSIS ........ 4
DATABASE MANAGEMENT ........ 4
DISPLAY SYSTEMS & VIDEO ........ 5
EDUCATION ........ 9
ENTERTAINMENT ........ 9
FINANCIAL MANAGEMENT ........ 11
GENERAL HARDWARE & ACCESSORIES ........ 13
GRAPHICS & DESIGN ........ 13
  CAD ........ 13
  CLIP ART ........ 14
  DRAWING ........ 15
  FONTS & TYPOGRAPHY ........ 15
  MODELING & ANIMATION ........ 18
  PAGE LAYOUT ........ 19
  PAINTING & IMAGE EDITING ........ 20
  PRESENTATIONS ........ 22
INPUT DEVICES ........ 22
MUSIC & SOUND ........ 24
NETWORKING & CONNECTIVITY ........ 28
ORGANIZATIONAL TOOLS ........ 32
  PERSONAL-INFO MANAGERS ........ 33
  PROJECT PLANNERS & ORGANIZERS ........ 34
OUTPUT DEVICES ........ 35
PERFORMANCE ENHANCERS ........ 39
PROGRAMMING & SYSTEMS ........ 42
RESOURCES ........ 44
SCANNERS ........ 44
SPREADSHEETS & NUMERICAL ANALYSIS ........ 46
STORAGE SYSTEMS ........ 50
  HARD-DISK DRIVES ........ 50
  REMOVABLES ........ 54
TELECOMMUNICATIONS ........ 57
UTILITIES ........ 58
  FILE & DISK MANAGEMENT ........ 59
  PRINTING ........ 62
  SECURITY ........ 63
WORD PROCESSING ........ 64
  OCR ........ 65
  SPELLING & GRAMMAR CHECKERS ........ 66

## DATA ACQUISITION & ANALYSIS

### IPLab Spectrum 🐭🐭🐭

This scientific image-processing package extracts and analyzes data from photographic-quality color images. Supports video capture and includes scripting language. Allows mathematically expressed image modification down to the pixel level. No morphology and quantitative analysis. Version 1.0 reviewed. Version 2.1 shipping. Requires color Mac II series with 4 MB of RAM. $999. Signal Analytics Corp., 374 Maple Ave. E., Ste. 204, Vienna, VA 22180. 703-281-3277. (July '91) [MF#601]

### MacADIOS II 🐭🐭🐭🐭

MacADIOS II is a hardware and software interface for laboratory instruments. Standard configuration samples up to 142 kHz. Sketchy documentation. Requires Mac II series or higher. NuBus data-acquisition card, $1,490 direct; SuperScope software, $990. GW Instruments, 35 Medford St., Somerville, MA 02143. 617-625-4096. (July '88) [MF#602]

### Ultimage 🐭🐭🐭🐭

Ultimage/X is a scientific image-processing package that extracts and analyzes data from photographic-quality color images. Supports video capture. Includes scripting language and provides morphology and sophisticated quantitative analysis. A 3-D View command plots color perspective graphs with mountains and valleys corresponding to pixel light intensity. Version 1.2 reviewed. Version 2.0 shipping. Requires Mac II series or higher with math coprocessor and 4 MB of RAM. $2,800. GTFS, Inc., 2455 Bennett Valley Rd., Ste. 100C, Santa Rosa, CA 95404. 707-579-1733. (July '91) [MF#603]

## DATABASE MANAGEMENT

### 4D Calc 🐭🐭🐭½

4D Calc is a spreadsheet module that works with 4th Dimension. Although it can't replace a full-featured spreadsheet program, 4D Calc's hot links to 4D databases immediately update shared information. 4D Calc offers considerable design potential for 4D programmers contemplating more-sophisticated uses of this module. Version 1.0 reviewed. Requires 4th Dimension 2.1.1 or later. $295. ACIUS, Inc., 10351 Bubb Rd., Cupertino, CA 95014. 408-252-4444. (June '91) [MF#604]

### 4D Compiler 🐭🐭🐭🐭½

This developer tool lets 4th Dimension speed up many user-defined procedures, rather than interpreting code into machine language. Copy-protected; asks for an original disk at launch and occasionally thereafter. Version 1.0 reviewed. $1,000; for registered 4D developers, $700. ACIUS, Inc., 10351 Bubb Rd., Cupertino, CA 95014. 408-252-4444. (Jan '91) [MF#605]

### 4D Write 🐭🐭🐭½

4D Write is a word-processing module that works with 4th Dimension. Although you can't replace a full-blown word-processing program with 4D Write, it has basic features such as formatting, rulers, and the capability to handle simple graphics. Version 1.0 reviewed. Requires 4th Dimension 2.1.1 or later. $295. ACIUS, Inc., 10351 Bubb Rd., Cupertino, CA 95014. 408-252-4444. (June '91) [MF#606]

### 4D XREF 🐭🐭🐭🐭½

4D XREF is an analytical tool that every 4D developer will cherish. It's a module that lists and cross-references all the variables, procedures, commands, externals, structure elements, and layouts used in a 4D database. The entire XREF file can be saved as a text file for use in other applications. Version 1.0 reviewed. Requires 4th Dimension 2.1.1 or later. $200. ACIUS, Inc., 10351 Bubb Rd., Cupertino, CA 95014. 408-252-4444. (June '91) [MF#607]

### 4th Dimension 🐭🐭🐭🐭½

4th Dimension is a fast, versatile relational-database program that can create powerful, elegant stand-alone applications. Has a Pascal-like procedural language but also allows simplified database design using standard layouts. Design environment provides easy linking of different information types. Good documentation. A wide variety of specialized 4D add-ons are available. Version 2.23 reviewed. Requires Mac Plus or later and a hard-disk drive. $795. ACIUS, Inc., 10351 Bubb Rd., Cupertino, CA 95014. 408-252-4444. (June '92) ★ '87, '89 Eddy [MF#608]

### 4thRight! Professional 🐭

4thRight! Professional is a database-development shell for 4th Dimension. Requires laborious setup and has confusing interface. Sluggish for uncompiled databases, because of poor programming. Inaccurate documentation. Version 2.01 reviewed. Requires 4th Dimension. $695. Digital Concepts, Inc., 10725 S.W. Barbur Blvd., Ste. 220, Portland, OR 97219. 800-338-4259 or 503-244-4460. (Feb '92) [MF#609]

### Atlas Pro 🐭🐭🐭🐭

Atlas Pro is a sophisticated digital cartographer that displays demographic and marketing information geographically. Uses basic spreadsheetlike tools to manipulate and edit data. Can use System 7's publish-and-subscribe feature to update maps linked to data files created by other applications. A

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FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

large library of maps and supporting data is available (some at additional cost), but there's no internal database manager. Version 1.05 reviewed. Requires Mac Plus or later and a hard-disk drive; 68030 CPU or higher and color display system recommended. $795; optional street maps, $200 to $500 per county; entire U.S. on CD-ROM, $25,000. Strategic Mapping, Inc., 4030 Moorpark Ave., Ste. 250, San Jose, CA 95117. 408-985-7400. (May '92) [MF#610]

**Azimuth 🐁🐁🐁🐁**

Azimuth is a cartographic powerhouse that teams sophisticated projection mapping with 2-D-CAD tools. Lets you build excellent perspective maps of the earth based on a view from space. No built-in data-analysis features, but allows detailed map annotation. Can export files in black-and-white EPS format for use with DTP and illustration programs. Includes outlines of all countries and states but not counties or city streets. Version 2.0 reviewed. Requires Mac Plus or later and a hard-disk drive. $395. Graphsoft, Inc., 8370 Court Ave., Ste. 202, Ellicott City, MD 21043. 301-461-9488. (Apr '92) [MF#611]

**DAtabase 🐁🐁**

DAtabase is an easy-to-use flat-file manager in a DA. Handles pictures, text, and numbers. Xtras feature lets you incorporate sound, phone dialing, and graphics. Allows only a single view of data. Has 50-field limit and minimal calculation options. Version 1.51 reviewed. Requires Mac Plus or later. $129.95. Baseline Publishing, Inc., 1770 Moriah Woods Blvd., Ste. 14, Memphis, TN 38117. 800-926-9677 or 901-682-9676. (Feb '92) [MF#612]

**Descartes 🐁🐁🐁½**

Descartes 1.0.3 is a digital cartographer that displays demographic and marketing information geographically. Has innovative, easy-to-use, iconic internal database manager. Version 1.03 reviewed. Requires Mac SE or later with 2 MB of RAM. $795. PC Globe, Inc., 4700 S. McClintock, Tempe, AZ 85282. 602-730-9000. (Mar '91) [MF#613]

**Double Helix 🐁🐁🐁🐁**

This sophisticated relational-database manager can work in a multiuser environment. Its icon-based development system makes database creation easy. Has no reusable code. Cannot link externals. No multiwindow support. Version 3.5 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $695. Helix Technologies, 4100 Commercial Ave., Northbrook, IL 60062. 800-364-4354 or 708-498-5615. (June '92) [MF#614]

**Easy4D 🐁🐁🐁🐁½**

Easy4D is a database-development shell for 4th Dimension. Emphasizes minimal coding and simplicity for the designer while providing numerous features that benefit users of completed databases. Clean, consistent, and elegant. Good documentation. Version 2.1 release 4 reviewed. Requires 4th Dimension. $399. Natural Intelligence, Inc., 2067 Massachusetts Ave., Cambridge, MA 02140. 617-876-4876. (Feb '92) [MF#615]

**File Force 🐁🐁🐁🐁**

File Force is a relational-database manager. Script editor provides a graphic way to view database file structures, establish file relations, and access layouts. Excellent documentation. Version 1.0 reviewed. Version 1.0.1 shipping. $395. ACIUS, Inc., 10351 Bubb Rd., Cupertino, CA 95014. 408-252-4444. (Sept '90) [MF#616]

**FileMaker Pro 🐁🐁🐁🐁½**

This flat-file-database manager is ideal for novices but has the power to run large, sophisticated databases. Offers flexible layouts, good searching/sorting functions, many data-entry and calculation options, and good reporting capabilities. Has many features of a relational-database manager. Several users on an AppleTalk network can access and modify one database simultaneously without requiring a dedicated server. Version 1.0v2 reviewed. Requires Mac Plus or higher with System 6.03 or later, 2 MB of RAM, and a hard-disk drive. $299. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (Feb '92) ★ '86 Eddy [MF#617]

**Filevision IV 🐁🐁🐁**

Filevision IV is a picture-oriented flat-file-database manager. The application of choice for graphics/text-integration projects but not for straight-text uses. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later. $295. TSP Software, 4790 Irvine Blvd., Ste. 105-294, Irvine, CA 92720. 714-731-1368. (Nov '89) [MF#618]

**FoxBASE+/Mac 🐁🐁🐁🐁½**

This powerful relational-database manager can read unmodified dBASE/DOS or FoxBASE/DOS files. Amazingly fast, regardless of database size. Steep learning curve, but worth it for professional applications. Supports multiwindow databases. Version 2.01 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $495. Fox Software, Inc., 134 W. South Boundary, Perrysburg, OH 43551. 419-874-0162. (June '92) ★ '88 Eddy [MF#619]

**GeoQuery 🐁🐁🐁🐁**

GeoQuery, a digital cartographer, displays demographic and marketing information geographically. It lacks an internal database manager and international maps, but it supports U.S. boundary maps by state, county, ADI, and DMA (not by ZIP code). Version 1.0 reviewed. Version 3.02 shipping. Requires Mac Plus or later and System 6.03 or later. $395 direct. GeoQuery Corp., 475 Alexis R. Shuman Blvd., Ste. 385E, Naperville, IL 60563. 800-541-0181 or 708-357-0535. (Mar '91) [MF#620]

**MapInfo for Macintosh 🐁🐁🐁**

MapInfo is a digital cartographer that displays demographic and marketing information geographically. Large library of maps and supporting data available (some at additional cost). Version 1.01 reviewed. Version 1.13 shipping. Requires Mac Plus or later with 2 MB of RAM. $995; additional maps, boundary files, and city-point files, starting at $95 each; quantity discounts available; site licenses available. MapInfo Corp., 200 Broadway, Troy, NY 12180. 800-327-8627 or 518-274-6000. (Mar '91) [MF#621]

**Omnis Seven 🐁🐁🐁🐁½**

Omnis Seven is a fast, powerful, yet easy-to-use relational-database manager. Offers stellar cross-platform compatibility between PC and Mac environments. Ideal for experienced database developers, yet also provides Short Menus mode and consistent, easy-on-the-brain interface for beginners. Version 1.0 reviewed. Version 1.03 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $1,250. Blyth Software, Inc., 1065 E. Hillsdale Blvd., Ste. 300, Foster City, CA 94404. 800-346-6647 or 415-571-0222. (June '92) [MF#622]

**Panorama II 🐁🐁🐁🐁**

Panorama is a powerful and classy flat-file-database manager. Stores databases in RAM to maximize performance, but file size is therefore limited by memory-partition size. Vulnerable to power interruptions. Version 2.01 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $395. ProVUE Development, Inc., 15180 Transistor Ln., Huntington Beach, CA 92649. 714-892-8199. (Feb '92) ★ '88 Eddy [MF#623]

**Pro-Cite 🐁🐁🐁½**

Pro-Cite is a complete database-management system for bibliographies. Overly complicated and nonintuitive use of menu bar and dialog boxes. Version 1.3 reviewed. Version 2.0 shipping. Requires Macintosh Plus or later and System 6.03 or later; hard-disk drive recommended. $395. Personal Bibliographic Software, Inc., P.O. Box 4250, Ann Arbor, MI 48106. 313-996-1580. (Feb '89) [MF#624]

**Reports 🐁🐁🐁🐁½**

Reports fills the gap left by HyperCard's limited report-generation ability by delivering powerful database-reporting capabilities. You can create report layouts, choose any HyperCard-based record selection and sorting criteria, and print the results. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later with 4 MB of RAM, System 6.03 or later, a hard-disk drive, and HyperCard 2.1 (included) or later. $149.95. Nine To Five Software, 3360 Mitchell Ln., Ste. 105, Boulder, CO 80301. 800-292-5925 or 303-443-4104. (June '91) [MF#625]

**Tactician 🐁🐁🐁🐁½**

Tactician is a digital cartographer that displays demographic and marketing information geographically. Has excellent performance and interface that incorporates Apple's DAL. A large library of maps and supporting data is available, but there is no internal database manager. Version 2.0 reviewed. Version 2.2 shipping. Requires Mac II series with 4 MB of RAM, a color monitor, and a hard-disk drive. $2,495. Tactics International, 16 Haverhill St., Andover, MA 01810. 800-927-7666 or 508-475-4475. (Mar '91) ★ '90 Eddy [MF#626]

## DISPLAY SYSTEMS & VIDEO

**Apple Display 8•24 🐁🐁🐁🐁½**

This 24-bit color display system combines the 13-inch AppleColor Hi-Res RGB Display with the Macintosh Display Card 8•24. The screen may not be large enough for some professional applications, but the sharpness, focus, and color quality are unbeatable. Requires Mac II series. $1,698. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (May '91) [MF#628]

**Apple Display 8•24 GC 🐁🐁🐁🐁½**

This 24-bit color display system combines the 13-inch AppleColor Hi-Res RGB Display with the fast Macintosh Display Card 8•24 GC. The screen may not be large enough for some professional applications, but no one will ever have reason to complain about the display's sharpness, focus, and color quality. The 8•24 GC video card provides the fastest QuickDraw acceleration available. $2,498. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (May '91) [MF#629]

**Apple Macintosh 12" Monochrome Display 🐁🐁🐁**

This 12-inch monochrome monitor has good geometry. Due to the antiglare etching, users can experience focus problems. The screen is dim. Resolution is 74 dpi. Requires Mac II series with video card (optional with Mac IIci and IIsi). Monitor only, $299. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Apr '90) [MF#630]

**Apple Macintosh Portrait Display 🐁🐁🐁🐁½**
This high-quality, full-page monitor is one of the best available. Its screen resolution is slightly below true WYSIWYG, so things appear a bit small. Can produce as many as 256 levels of gray, using a Macintosh Display Card 8•24. Requires Mac II series with video card (optional with Mac IIci and IIsi). $1,099. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Feb '91) ★ '89 Eddy [MF#631]

**Apple Two-Page Monochrome Monitor 🐁🐁🐁🐁**
This 21-inch monochrome display monitor is dim but has good focus and moderate glare protection. It has a small active-screen area. Requires Mac II series with video card. Monitor, $2,149. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Apr '90) [MF#632]

**AppleColor High-Resolution RGB Monitor 🐁🐁🐁🐁½**
The AppleColor High-Resolution RGB Monitor is the standard among 13-inch monitors. It's very bright but lacks built-in glare protection. Can support 24-bit color when used with the Macintosh Display Card 8•24 or 8•24 GC. Very reliable workhorse. Requires video card (optional with Mac LC, IIci, and IIsi). $999. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (May '90) [MF#633]

**CalComp ChromaVision QuickPlus 🐁🐁½**
The ChromaVision QuickPlus is an accelerated 24-bit-video card. Sold only with CalComp color monitors. Doesn't support 16-bit color. High power consumption. Resolution options limited to 1,152 x 870 pixels. Two-year warranty. Requires Mac II series or higher. $4,995. CalComp Display Systems Group, 65 River Rd. CS908, Hudson, NH 03051. 800-225-0065 or 603-885-8855. (May '92) [MF#634]

**CalComp DrawingCard ChromaVision 🐁🐁🐁🐁**
This sharp 21-inch color monitor displays two A4 pages. Screen coloration is uneven. Has no bundled software. Requires Macintosh II series or higher. 8-bit ChromaVision, $5,995; 24-bit ChromaVision Plus, $6,995; accelerated 24-bit ChromaVision QuickPlus, $8,595. CalComp Display Systems Group, 65 River Rd. CS908, Hudson, NH 03051. 800-225-0065 or 603-885-8855. (May '90) [MF#635]

**Computer Friends ColorSnap 32+ 🐁🐁🐁🐁½**
The ColorSnap 32+ is a NuBus card that digitizes single frames of video input. Above-average image quality. Software is powerful, complete, and easy to use. Provides image cataloging as well as plug-ins for Photoshop and QuarkXPress. Video-in options include composite, RGB, and S-video. Live-video display is slow and uses a small window; 24-bit images can be digitized, but resolution is 640 x 480 pixels. Version 1.1 reviewed. Version 1.21 shipping. Requires Mac II series. $995. Computer Friends, Inc., 14250 N.W. Science Park Dr., Portland, OR 97229. 800-547-3303 or 503-626-2291. (July '91) [MF#636]

**DTI SpeedView 🐁🐁🐁🐁**
The SpeedView is a full-page display that can show an entire actual-size tabloid page. Designed for professional publishers who need large-screen acreage. Comes with monochrome or gray-scale card plus tilt/swivel stand. Requires Mac II series. Monochrome, $2,495; gray-scale, $3,195. DTI (Digital Technology International), 500 W. 1200 S., Orem, UT 84058. 801-226-2984. (Feb '91) [MF#637]

**E-Machines ColorPage E16 🐁🐁🐁½**
This affordable 8-bit-color display system includes a PDS video card, a cable, and a 16-inch Toshiba shadow-mask monitor. Has poor display characteristics, and cable is poorly shielded. Resolution is WYSIWYG 72 dpi. Active screen size is 14.5 inches diagonally. Good software features. Requires Mac LC. $1,828. E-Machines, Inc., 9305 S.W. Gemini Dr., Beaverton, OR 97005. 800-344-7274 or 503-646-6699. (Feb '92) [MF#638]

**E-Machines ColorPage T16 🐁🐁🐁🐁½**
This affordable 8-bit-color display system includes a PDS video card, a cable, and a 16-inch Sony Trinitron monitor. Has excellent display characteristics. Resolution is WYSIWYG 72 dpi. Active screen size is 14.5 inches diagonally. Only external monitor controls are power switch and vertical/horizontal convergence; brightness and contrast are controlled by software. Automatic degaussing. Good software features. Cable is poorly shielded. Requires Mac LC. $2,228. E-Machines, Inc., 9305 S.W. Gemini Dr., Beaverton, OR 97005. 800-344-7274 or 503-646-6699. (Feb '92) [MF# 639]

**E-Machines ColorPage T16/24 🐁🐁🐁🐁🐁**
This 24-bit-color display system combines the ColorPage T16 monitor with a 24-bit-video card. The 16-inch screen size should be large enough for most professional applications. Sharpness, focus, and color quality are nearly perfect. Requires Mac II series or higher. $3,598. E-Machines, Inc., 9305 S.W. Gemini Dr., Beaverton, OR 97005. 800-344-7274 or 503-646-6699. (May '91) [MF#640]

**E-Machines ColorPage T16/8 🐁🐁🐁🐁🐁**
The ColorPage T16/8 is a bright, top-quality 8-bit color monitor. The monitor is a razor-sharp Sony Trinitron, and the video card is also excellent. Requires Mac II series. With 8-bit card, $2,598. E-Machines, Inc., 9305 S.W. Gemini Dr., Beaverton, OR 97005. 800-344-7274 or 503-646-6699. (May '90) ★ '88 Eddy [MF#641]

**E-Machines Futura MX 🐁🐁½**
Futura MX is an accelerated 24-bit-color video card that supports 38 virtual-screen sizes. Affordable but not as fast as similar products. Low power consumption. Supports resolutions of 640 x 480, 800 x 600, 832 x 624, and 1,024 x 768 pixels. Five-year warranty. Requires Mac II series or higher. $1,599. E-Machines, Inc., 9305 S.W. Gemini Dr., Beaverton, OR 97005. 800-344-7274 or 503-646-6699. (May '92) [MF#642]

**E-Machines QuickView Studio 🐁🐁🐁½**
This NuBus card sequentially digitizes multiple frames of video input. Poor image quality but nice software interface. Video-in options include composite, RGB, and S-video. Version 1.0 reviewed. Version QT shipping. Requires Mac II series or higher. $1,799. E-Machines, Inc., 9305 S.W. Gemini Dr., Beaverton, OR 97005. 800-344-7274 or 503-646-6699. (July '91) [MF#643]

**E-Machines T19/24 🐁🐁🐁🐁½**
This 24-bit-color display system combines the E-Machines T19 monitor with a 24-bit-video card. A high-quality, affordable combination that delivers excellent overall performance. The 19-inch screen size is large enough for nearly all professional applications. Sharpness, focus, and color quality are outstanding. Good 39-page manual. Requires Mac II series or higher. $4,198 (includes monitor and 24-bit-video card). E-Machines, Inc., 9305 S.W. Gemini Dr., Beaverton, OR 97005. 800-344-7274 or 503-646-6699. (May '91) [MF#644]

**E-Machines TX/24 🐁🐁🐁🐁½**
This 24-bit-color display system combines the E-Machines TX monitor with a 24-bit-video card. Delivers very good overall performance. The 16-inch screen size should be large enough for most professional applications. This monitor provides a non-WYSIWYG, 87-dpi image that displays plenty of information at somewhat-reduced scale. Has excellent sharpness, focus, brightness, and color quality. Requires Mac SE/30 or II series with NuBus adapter. $3,298. E-Machines, Inc., 9305 S.W. Gemini Dr., Beaverton, OR 97005. 800-344-7274 or 503-646-6699. (May '91) [MF#645]

**Ehman 20" Color Trinitron 🐁🐁🐁½**
This affordable 8-bit-color display system includes a PDS video card, a cable, and a 20-inch Sony Trinitron monitor. Adequate display characteristics. Video card lacks FPU slot, but software provides pseudo-FPU capability. Resolution is WYSIWYG 72 dpi. Requires Mac IIsi. $2,795 direct. Ehman Engineering, Inc., 97 S. Red Willow Rd., P.O. Box 2126, Evanston, WY 82931. 800-257-1666 or 307-789-3830. (Feb '92) [MF#646]

**Ehman Full Page Display 🐁🐁🐁½**
Considering its price, this 15-inch monochrome screen is a good investment. Performance doesn't equal that of some more-expensive monitors, and image quality is average. Video cards are available for the SE, SE/30, and Mac II series. Comes with tilt/swivel stand. $499. Ehman Engineering, Inc., 97 S. Red Willow Rd., P.O. Box 2126, Evanston, WY 82931. 800-257-1666 or 307-789-3830. (Feb '91) [MF#647]

**Generation Systems Color 24 🐁🐁🐁🐁**
This 24-bit-color display system combines an Ikegami Trinitron monitor with a 24-bit-video card. A high-quality, affordable combination that delivers very good overall performance. The 20-inch screen size is adequate for most professional applications. Brightness, sharpness, focus, and color quality are excellent, but color convergence is slightly off. Requires Mac II series. $5,595. Generation Systems, Inc., 2648 Patton Rd., St. Paul, MN 55113. 800-325-5811 or 612-633-5222. (May '91) [MF#648]

**Lapis DisplayServer II-DPD 🐁🐁🐁½**
This monochrome NuBus video card lets a Mac II work with PC-compatible VGA monitors. The card has occasional problems with some Mac programs, and it isn't cost-effective if used with a small monitor. Requires Mac II series. $549. Lapis Technologies, 1100 Marina Village Pkwy., Ste. 100, Alameda, CA 94501. 800-435-2747 or 510-748-1600. (June '91) [MF#649]

**MacProducts MagicView 🐁🐁🐁½**
This 19-inch monochrome monitor is bright and has fair focus. The phosphor is bluish. Requires Mac SE or later. $699 direct. MacProducts USA, Inc., 608 W. 22nd St., Austin, TX 78705. 800-622-3475 or 512-472-8881. (Apr '90) [MF#650]

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**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

**Mass Microsystems ColorSpace IIi/FX 🐭🐭🐭½**
These two NuBus cards bring live 24-bit video to the Mac. They can drive the Mac monitor and a TV display. The FX board converts regular NTSC composite-video signals to RGB. The IIi board lets you mix live video with computer graphics. Allows sophisticated special effects. Inadequate software and manuals. Includes NTSC digitizer for grabbing 640-x-480-pixel PICT frames for export. Requires Mac II series and appropriate cable. IIi and ColorSpace FX bundle, $2,495. Mass Microsystems, Inc., 810 W. Maude Ave., Sunnyvale, CA 94086. 800-522-7979 or 408-522-1200. (Aug '91) ★ '88 Eddy [MF# 651]

**Mirror ProView 20" 🐭🐭🐭**
This affordable 8-bit-color display system includes a PDS video card, a cable, and a 20-inch Sony Trinitron monitor. Has good display characteristics. Resolution is WYSIWYG 72 dpi. Requires Mac IIsi and PDS adapter. $2,799 direct; PDS adapter, $50. Mirror Technologies, Inc., 2644 Patton Rd., Roseville, MN 55113. 800-654-5294 or 612-633-4450. (Feb '92) [MF#652]

**Mirror ProView 24-Bit Display System 🐭🐭🐭🐭½**
This 24-bit-color display system combines an Ikegami Trinitron monitor with a 24-bit-video card. A high-quality, affordable combination, this system delivers good overall performance. The 19-inch screen size is large enough for most professional applications. Sharpness, focus, and color quality are excellent, but geometry is slightly off. Requires Mac II series. $2,999. Mirror Technologies, Inc., 2644 Patton Rd., Roseville, MN 55113. 800-654-5294 or 612-633-4450. (May '91) [MF#653]

**Mobius One Page Display 🐭🐭🐭🐭**
This 15-inch monochrome full-page display is a good choice for SE owners. Video cards are available for the SE, SE/30, and Mac II series. Has antiglare coating and comes with a tilt/swivel stand. Requires Mac SE or later and System 6.05 or later. $595 direct; with 68030 accelerator on card, $1,095. Mobius Technologies, 1125 Atlantic Ave., Alameda, CA 94501. 800-523-7933 or 510-523-7900. (Feb '91) [MF#654]

**Moniterm Viking C24 🐭🐭🐭🐭**
This 24-bit-color display system combines an Ikegami Trinitron monitor with a 24-bit-video card. This high-quality combination delivers good overall performance. The 20-inch screen size is large enough for most professional applications. Sharpness, focus, and color quality are excellent. Requires Mac II series. $7,490. Moniterm, 5740 Green Circle Dr., Minnetonka, MN 55343. 800-933-5740 or 612-935-4151. (May '91) [MF#655]

**Neotech Image Grabber and Colour Adapter Module 🐭🐭🐭🐭**
The Neotech Image Grabber is a NuBus card that digitizes single frames of still-video input. Excellent image quality. Outputs gray-scale NTSC video. The Colour Adapter Module is an optional external box that adds color capability. Software is powerful but complex. Version 1.5 reviewed. Version 2.05 shipping. Requires Mac II series or higher. Image Grabber, $1,499; Colour Adapter Module, $499. Advent Computer Products, Inc., 449 Santa Fe Dr., Ste. 213, Encinitas, CA 92024. 619-942-8456. (July '91) [MF# 656]

**Nutmeg N19Csi 🐭🐭🐭½**
This affordable 8-bit-color display system includes a PDS video card, a cable, and a 20-inch Sony Trinitron monitor. Average display characteristics. Video card lacks FPU slot. Skimpy software. Requires Mac IIsi. $4,599. Nutmeg Systems, 25 South Ave., New Canaan, CT 06840. 800-777-8439 or 203-966-3226. (Feb '92) [MF# 657]

**PCPC II 16" Color 🐭🐭🐭🐭½**
This 24-bit-color display system combines a Sony Trinitron monitor with a 24-bit-video NuBus card. A high-quality, affordable combination, this system delivers good overall performance. The 16-inch screen size is large enough for most professional applications, but the 82-dpi resolution produces an image that may appear too condensed. Sharpness, focus, and color quality are excellent. Includes Stepping Out II software. Requires Mac II series or higher. $2,495. PCPC (Personal Computer Peripherals Corp.), 4710 Eisenhower Blvd., Bldg. A4, Tampa, FL 33634. 800-622-2888 or 813-884-3092. (May '91) [MF#658]

**PCPC Shadowgraph 🐭🐭🐭🐭🐭**
This system includes a 19-inch monochrome Ikegami monitor and an 8-bit-video card, delivering excellent gray linearity and MTF sharpness, with good focus and geometry. Provides 256 gray levels, but gray-scale image is superb. Requires Mac II series or higher. $1,295. PCPC (Personal Computer Peripherals Corp.), 4710 Eisenhower Blvd., Bldg. A4, Tampa, FL 33634. 800-622-2888 or 813-884-3092. (Oct '89) [MF# 659]

**Premiere 🐭🐭🐭🐭½**
Premiere is a full-fledged QuickTime movie-editing studio in software. Has slick, streamlined interface that's accessible and intuitive for novices. Premiere offers powerful digital-video-editing tools and a wide variety of special effects and transitions. Uses premade QuickTime movies created by video digitizer boards. Can also incorporate PICS, PICT, and Photoshop images along with digitized sound in snd, SoundEdit, and AIFF formats. Version 1.0 reviewed. Requires Mac II series or higher with 4 MB of RAM, a high-capacity hard-disk drive, System 6.07 or later, and 32-bit QuickDraw. $495. Adobe Systems, 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (June '92) [MF#627]

**Proxima Ovation 🐭🐭🐭🐭½**
The Ovation is a color active-matrix LCD panel for use with overhead projectors. Displays brilliant, high-contrast image that, unlike that of conventional LCD panels, keeps up with the fastest animations, mouse actions, or even 30-fps live video. Resolution is 640 x 480 pixels. The panel can address as many as 3,375 true colors from the Mac or as many as 24,000 colors in video mode. Supports Mac RGB, VGA (IBM PC), and either NTSC or PAL broadcast standards. Accepts VHS or S-VHS input from camcorders, laserdisc players, and VCRs. Optional Cyclops hardware includes optical sensor that reacts to point-and-click input on-screen from a light-tipped wand. Optional Laser Pointer lets you control Cyclops while standing 25 feet from screen. Requires Mac II series or higher. $8,495; Cyclops, $1,195; Laser Pointer, $395.95. Proxima Corp., 6610 Nancy Ridge Dr., San Diego, CA 92121. 619-457-5500. (Jan '92) [MF#660]

**Radius Color Pivot LC 🐭🐭🐭🐭½**
This affordable 8-bit-color display system includes a PDS video card, a cable, and a 15-inch Toshiba shadow-mask monitor. Active screen size is 13.22 inches. Monitor can rotate 90 degrees between portrait and landscape orientations. Offers excellent focus, color quality, and maximum usable brightness. Bundled software is excellent. Allows resolutions of 82 dpi or WYSIWYG 72 dpi. Monitor also available with Radius NuBus cards for other Macs. Requires Mac LC. $1,848. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (Feb '92) [MF#661]

**Radius Color Pivot si 🐭🐭🐭🐭½**
This affordable 8-bit-color display system includes a PDS video card, a cable, and a 15-inch Toshiba shadow-mask monitor. Active screen size is 13.22 inches. Monitor can rotate 90 degrees between portrait and landscape orientations. Offers excellent focus, color quality, and maximum usable brightness. Bundled software is excellent and allows resolutions of 82 dpi or WYSIWYG 72 dpi. Monitor also available with Radius NuBus cards for other Macs. Requires Mac IIsi. $2,148. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (Feb '92) [MF#662]

**Radius Full Page Display 🐭🐭🐭🐭**
The Full Page Display is a bright monochrome portrait display, with screen resolution slightly below that of true WYSIWYG. It is capable of 256 shades of gray with available Radius cards. A slight screen flicker is perceptible. Requires Mac Plus or later. $699. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (Apr '90) ★ '86 Eddy [MF#663]

**Radius Pivot for Built-in Video 🐭🐭🐭🐭½**
The Radius Pivot for Built-in Video is an impressive 15-inch full-page display. Excellent focus and maximum usable brightness. Monitor can rotate 90 degrees between portrait and landscape orientations. Video card requires Mac II series, SE/30, or LC. Monitor only, $849 (for Macs with built-in video); optional video card, $599. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (June '91) [MF#664]

**Radius PrecisionColor 24x 🐭🐭🐭½**
The PrecisionColor 24x is an accelerated 24-bit-color video card that lets you change screen resolutions on the fly. Good performance. Offers seven resolution choices ranging from 560 x 760 up to 1,152 x 882. An adapter for the IIsi is available. Requires Mac II series or higher. $1,999. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (May '92) [MF# 665]

**Radius Two Page Display/19 🐭🐭🐭🐭**
The Radius Two Page Display/19 is a bright, well-focused 19-inch monochrome display system. Comes with Radius' famous software, which includes tear-off menus and screen-capture capability. Requires Mac SE, SE/30, or II series. $1,099. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (Apr '90) ★ '88 Eddy [MF# 666]

**Radius Two Page Display/21 🐭🐭🐭🐭½**
This monochrome monitor's high pixel density may not offer perfect WYSIWYG, but it does display a lot of information. Its lack of glare protection is a trade-off for maximum brightness. Excellent geometry. Linearity, focus, and lack-of-nuisance ratings above average. Requires Mac SE, SE/30, or II series. $1,399. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (Oct '90) [MF# 667]

**RadiusTV 🐭🐭🐭🐭**
The RadiusTV is a NuBus card

with a tuner that can pick up broadcast and cable TV. Accepts audio from TVs, VCRs, and videodisc players. Clear, accurate image quality. Limited software. Video-in options include composite, RF, and RGB. Supports NTSC or PAL. Live-video display in 8- or 16-bit mode only; 8- or 16-bit images can be digitized. Audio can fall out of sync with video due to NuBus data-transfer limitations. Requires Mac II series or higher. $1,699. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (July '91) ★ '90 Eddy [MF#668]

**RasterOps 19" 8LC 🐭🐭🐭🐭**
This affordable 8-bit-color display system includes a PDS video card, a cable, and a 19-inch Hitachi shadow-mask monitor. Active screen size is 17.8 inches. Has dim screen, large footprint, and average display characteristics. Resolution is WYSIWYG 72 dpi. Three-year warranty. Requires Mac LC. $4,998. RasterOps, 2500 Walsh Ave., Santa Clara, CA 95051. 800-729-2656 or 408-562-4200. (Feb '92) [MF#669]

**RasterOps 24L 🐭🐭🐭🐭**
This high-quality 24-bit-color display system combines a Sony Trinitron monitor with a 24-bit-video card. The 19-inch screen is large enough for most professional applications. Excellent color quality. MTF sharpness is adequate, but this monitor is not a good choice for reading small type. Three-year warranty. Version 24L card reviewed. Version PaintBoard 24 card shipping. Requires Mac II series. $6,298. RasterOps, 2500 Walsh Ave., Santa Clara, CA 95051. 800-729-2656 or 408-562-4200. (May '91) [MF#670]

**RasterOps 24XLi 🐭🐭½**
RasterOps 24XLi is a 24-bit-color accelerated-video card. With additional 16 MB of RAM, it can support on-board 10-MB RAM disk, hardware pan and zoom, extended desktop, and GWorld QuickDraw routines. Three-year warranty. Requires Mac II series or higher. $2,499. RasterOps, 2500 Walsh Ave., Santa Clara, CA 95051. 800-729-2656 or 408-562-4200. (May '92) [MF#671]

**RasterOps 24XLTV 🐭🐭🐭**
RasterOps 24XLTV is a 24-bit-color accelerated-video card. High power consumption. Supports hardware pan and zoom plus many virtual-screen sizes. Includes NTSC, PAL, and SECAM capture and display. Three-year warranty. Requires Mac II series or higher. $2,999. RasterOps, 2500 Walsh Ave., Santa Clara, CA 95051. 800-729-2656 or 408-562-4200. (May '92) [MF#672]

**RasterOps ClearVue/SE 🐭🐭🐭🐭½**
This 19-inch monochrome monitor is bright and sharp with good focus. Screen is reasonably glare-free. Video card provides some acceleration for all Macintosh applications. Three-year warranty. Version SE monochrome card reviewed. Version GS30 card shipping. Requires Mac SE. $999. RasterOps, 2500 Walsh Ave., Santa Clara, CA 95051. 800-729-2656 or 408-562-4200. (Apr '90) [MF#673]

**RasterOps ColorBoard 364 🐭🐭🐭🐭**
The ColorBoard 364 is a dual-purpose NuBus board — a digitizing and display board as well as a 24-bit display card for the Apple 13-inch monitor. Good but limited software. Requires Mac II series. $1,999. RasterOps, 2500 Walsh Ave., Santa Clara, CA 95051. 800-729-2656 or 408-562-4200. (July '91) ★ '90 Eddy [MF# 674]

**RasterOps Video Expander 🐭🐭🐭½**
The RasterOps Video Expander is an external component that accepts the Mac's 15-pin RGB cable and outputs an NTSC composite, RGB, or S-video signal. Easy to use. Three-year warranty. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac II series. $599. RasterOps, 2500 Walsh Ave., Santa Clara, CA 95051. 800-729-2656 or 408-562-4200. (Aug '91) [MF#675]

**Seiko Instruments 14" Color (CM 1445) 🐭🐭🐭🐭½**
This high-quality, 24-bit-color display system combines a Seiko Trinitron monitor with a RasterOps 264 24-bit-video card. A great value. Requires Mac II series. $1,644. Seiko Instruments USA, Inc., 1130 Ringwood Ct., San Jose, CA 95131. 408-922-5900. (May '91) [MF#676]

**Sigma Designs ColorMAX 8/24 🐭🐭🐭🐭**
This high-quality, affordable color display system combines a Sony Trinitron monitor with a 24-bit-video card. Sharp, well-focused system delivers excellent color quality, and the 19-inch-diagonal screen size is large enough for most professional applications. Requires Mac II series. With 24-bit card, $6,695; with 8-bit card, $6,095. Sigma Designs, 47900 Bayside Pkwy., Fremont, CA 94538. 800-845-8086 or 510-770-0100. (May '91) [MF#677]

**Sigma Designs L-*View Multi-Mode 🐭🐭🐭🐭½**
This 19-inch monochrome monitor has a high-resolution (120-dpi) mode. Sharpest in normal 60-dpi mode. Has horizontal centering control. Requires Mac SE, SE/30, or Mac II series. $1,999. Sigma Designs, 47900 Bayside Pkwy., Fremont, CA 94538. 800-845-8086 or 510-770-0100. (Apr '90) ★ '90 Eddy [MF#678]

**Sigma Designs PageView 🐭🐭🐭½**
This full-page monochrome display screen offers multiple resolutions of 72, 80, and 88 dpi. Performance is good. Requires Mac SE or later. $1,199; monitor only for IIsi and IIci, $899. Sigma Designs, 47900 Bayside Pkwy., Fremont, CA 94538. 800-845-8086 or 510-770-0100. (Feb '91) [MF#679]

**Sigma Designs SilverView 🐭🐭🐭🐭**
This bright 21-inch monochrome monitor has good focus and fair geometry. Has minimal screen-nuisance factors. Horizontal-centering control. Good software. Requires Mac SE, SE/30, or Mac II series. $1,999; with 8-bit card, $2,399. Sigma Designs, 47900 Bayside Pkwy., Fremont, CA 94538. 800-845-8086 or 510-770-0100. (Apr '90) [MF#680]

**SuperMac 19" Dual-Mode Spectrum/8•24 PDQ si 🐭🐭🐭🐭½**
This 8-bit- or 24-bit-color display system includes a PDS video card, a cable, and a 19-inch Sony Trinitron monitor. Excellent display characteristics. Cable is well shielded. Has resolution of 82 dpi or WYSIWYG 72 dpi. The active screen size is 17.76 inches. Warranty is three years for monitor, five years for card. Requires Mac IIsi. $3,998. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (Feb '92) [MF# 681]

**SuperMac 19" Platinum Display 🐭🐭🐭🐭🐭**
This exceptional gray-scale display system has excellent focus, geometry, and lack-of-nuisance ratings. Above-average brightness and sharpness. Color-capable card. Hardware pan and zoom. Virtual desktop. Glare protection. Requires Mac II series or higher. Monitor, $1,099; 8-bit card, $399. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (Oct '90) [MF#682]

**SuperMac 19" SuperMatch Spectrum/8 LC 🐭🐭🐭🐭½**
This 8-bit-color display system includes a PDS video card, a cable, and a 19-inch Hitachi shadow-mask monitor. Active screen size is 17.76 inches. Excellent display characteristics. Cable is well shielded. Good software features, including on/off control of QuickDraw acceleration. Warranty is three years for monitor, five years for card. Requires Mac LC. $2,598. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (Feb '92) [MF# 683]

**SuperMac 21" SuperMatch Spectrum/8 si 🐭🐭🐭🐭½**
This 8-bit-color display system includes a PDS video card, cable, and a 21-inch Hitachi shadow-mask monitor. Active screen size is 18.72 inches. Has excellent display characteristics, cable is well shielded, and no PDS adapter is necessary. Warranty is three years for monitor, five years for card. Requires Macintosh IIsi. $4,248. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (Feb '92) [MF#684]

**SuperMac (Hitachi) 19" 🐭🐭🐭🐭½**
This high-quality color display system combines a Hitachi monitor with a Spectrum/24 PDQ 24-bit-video card. Few external controls are provided to manage screen-image characteristics. Requires Mac II series. $4,398. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (May '91) [MF#685]

**SuperMac (Hitachi) 21" 🐭🐭🐭🐭½**
This high-quality color display system combines a Hitachi monitor with a Spectrum/24 PDQ 24-bit-video card. Excellent color quality. The 21-inch screen is large enough for professional applications. Requires Mac II series. $6,048. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (May '91) [MF#686]

**SuperMac (Sony) 19" 🐭🐭🐭🐭🐭**
This high-quality color display system combines a Sony Trinitron monitor with a fast Spectrum/24 Series III 24-bit-video card. Excellent color quality. The 19-inch screen is large enough for most professional applications. Excellent software. Requires Mac II series. $4,698. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (May '91) [MF# 687]

**SuperMac Spectrum/24 PDQ Plus 🐭🐭🐭½**
The Spectrum/24 PDQ Plus is an accelerated 24-bit-color video card with good performance and features. Supports hardware pan and zoom and lets you change resolutions on the fly. High power consumption. Five-year warranty. Requires Mac II series or higher. $2,399. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (May '92) [MF#688]

**SuperMac Thunder/24 🐭🐭🐭🐭**
The Thunder/24 is a fast 24-bit-color accelerated-video card with good software. High power consumption. Has four SIMM slots for a maximum 8 MB of GWorld RAM. Five-year warranty. Requires Macintosh II series or higher. $3,499. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (May '92) [MF# 689]

**Taxan Crystal View 🐭🐭🐭🐭**
This 19-inch monochrome monitor is bright and sharp but has poor subjective focus. Screen color is uneven, with a yellowish center. Screen resolution is 72 dpi. Requires Mac SE, SE/30, or Mac II series. $1,695. Taxan, 161 Nortech Pkwy., San Jose, CA 95134. 800-648-2926 or 408-263-4900. (Apr '90) [MF#690]

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**MICE RATINGS** ....... 🐭 ........ 🐭½ ............ 🐭🐭 ............ 🐭🐭½ .............. 🐭🐭🐭 ............ 🐭🐭🐭½ ............ 🐭🐭🐭🐭 ............ 🐭🐭🐭🐭½ .............. 🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

**Truevision NuVista+ 🐭🐭🐭🐭½**
The Truevision NuVista+ is a NuBus card that offers both input and output, using composite, RGB, or S-video NTSC signals. Can output or digitize 32-bit RGB in a resizable window. Saves images in PICT or TGA formats. Allows impressive live-video effects. Good manual and software. Includes cables. Unlimited toll-free technical support. Requires Mac II series or higher. $2,995; with 2 MB of RAM, $3,595; with 4 MB of RAM, $4,795. Truevision, 7340 Shadeland Station, Indianapolis, IN 46256. 800-344-8783 or 317-841-0332. (Aug '91) ★ '88 Eddy [MF#691]

**TV Producer Pro 🐭🐭🐭**
TV Producer Pro is a NuBus card that overlays Mac graphics and text onto a video signal. Original software clumsy to use, but new version will provide access via control panel. Software version 1.0 reviewed. Version 1.12 shipping. Requires Mac II, Apple 8-bit-video card, and video source. $695. Computer Friends, Inc., 14250 N.W. Science Park Dr., Portland, OR 97229. 800-547-3303 or 503-626-2291. (May '88) [MF#692]

**VideoLogic DVA-4000 🐭🐭🐭🐭½**
DVA-4000 is a NuBus card that provides a complete set of audio/video features for multimedia. Excellent image quality. Software is powerful, complete, and easy to use. Provides stereo audio that's controllable through software. Video-in options include composite, RGB, and S-video. Requires Mac II series or higher. $2,395. VideoLogic, Inc., 245 First St., Cambridge, MA 02142. 617-494-0530. (July '91) [MF#693]

**VideoSpigot 🐭🐭🐭🐭½**
VideoSpigot is a series of affordable hardware/software packages that include video cards for digitizing consumer-level NTSC and PAL video. Lets you create sharp, colorful, home-video-quality QuickTime movies at resolutions of up to 320 x 240 pixels (NTSC). Lacks S-video input capability. Sound recording uses built-in microphone on an LC or IIsi, or a sound digitizer such as Macromedia's MacRecorder. Requires LC or Mac II series or higher with 8 MB of RAM and a high-capacity hard-disk drive. VideoSpigot NuBus (includes Premiere), $599; VideoSpigot NuBus for LC, $499; VideoSpigot Pro NuBus (includes Premiere), $1,599. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (July '92) [MF#694]

## EDUCATION

**Alphabet Blocks 🐭🐭🐭🐭🐭**
Alphabet Blocks teaches prereaders the letters and sounds of the alphabet. The on-screen elf's digitized voice is clear and pleasant. Very intuitive. Version 1.0 reviewed. Version 1.10 shipping. Requires Mac Plus or later. $59.95. Bright Star Technology, Inc., 1450 114th Ave. S.E., Ste. 200, Bellevue, WA 98004. 206-451-3697. (May '88) [MF#695]

**Earthquest 🐭🐭🐭½**
This HyperCard stack instructs users about Planet Earth through a series of games, puzzles, and quizzes. Its environmentalist edge provides practical ways to save the planet. Needs some minor debugging. Version 2.01 reviewed. Requires Mac Plus or later and HyperCard 2.0. $79.95. Earthquest, Inc., 125 University Ave., Palo Alto, CA 94301. 415-321-5838. (Dec '91) [MF#696]

**Fun Physics 🐭🐭🐭🐭🐭**
Fun Physics (formerly Interactive Physics) is one of the best teaching tools — short of a physics laboratory — you can buy. Students set up and run experiments, using simple drawing tools that attach objects with various strings and springs. Results of experiments are animated on-screen. Excellent manual. Version 1.0 reviewed. Requires Mac Plus or later and System 6.03 or later; hard-disk drive recommended. Fun Physics, $99; Interactive Physics II, $399. Knowledge Revolution, 15 Brush Pl., San Francisco, CA 94103. 800-766-6615 or 415-553-8153. (Apr '90) ★ '89 Eddy [MF#697]

**KidsMath 🐭🐭🐭🐭**
KidsMath is a set of eight educational applications for ages 3 to 8. Quality ranges from adequate to superb. Supports color and large monitors. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later. $49.95. Great Wave Software, 5353 Scotts Valley Dr., Ste. E, Scotts Valley, CA 95066. 408-438-1990. (May '90) [MF#698]

**KidsTime 🐭🐭🐭🐭**
KidsTime is a package of five quality educational programs for ages 3 to 7. The programs teach the alphabet, basic music concepts, simple word-processing skills, use of a computer, and connect-the-dots doodling. Supports color. Version 1.0 reviewed. Version 1.3 shipping. Requires Mac Plus or later. $49.95. Great Wave Software, 5353 Scotts Valley Dr., Ste. E, Scotts Valley, CA 95066. 408-438-1990. (Oct '86) ★ '86 Eddy [MF#699]

**LXR•TEST 🐭🐭🐭🐭**
LXR•TEST generates tests from a database of questions. Easy to modify and scramble test questions. Flexible output. Version 2.0 reviewed. Version 4.11 shipping. Requires Mac Plus or later; hard-disk drive recommended. $149; professional edition, $499; scoring edition, $799. Logic eXtension Resources, 9651-C Business Center Dr., Rancho Cucamonga, CA 91730. 714-980-0046. (May '88) [MF#700]

**MacPhotography Workshop 🐭🐭🐭🐭🐭**
This seven-disk program teaches basic camera and darkroom techniques. Animated simulations and hypertext make learning black-and-white photography easy. Requires Mac Plus or later and a hard-disk drive. $85; ten-copy Lab Pack, $340. Intellimation Library for the Macintosh, 130 Cremona Drive, P.O. Box 1530 (Dept. GAPI), Santa Barbara, CA 93116. 800-346-8355 or 805-968-2291. (Sept '90) [MF#701]

**Mavis Beacon Teaches Typing! 🐭🐭🐭🐭**
Mavis Beacon Teaches Typing! has more features than a Selectric. Lots of diagnostics concerning typos. Incomplete documentation. Version 1.1 reviewed. Version 1.3 shipping. Requires Mac 512Ke or later. $49.95. Software Toolworks, 60 Leveroni Ct., Novato, CA 94949. 800-234-3088 or 415-883-3000. (Nov '88) [MF#702]

**Number Munchers 🐭🐭🐭🐭🐭**
Number Munchers is an educational arcade game for grades 3 to 12. Teaches variety of skills for multiplication, factors, primes, equalities, and inequalities. Version 1.0 reviewed. Version 1.2 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive; color display system recommended. $49.95. MECC, 6160 Summit Dr. N., Minneapolis, MN 55430. 800-685-6322 or 612-569-1500. (Oct '90) [MF#703]

**NumberMaze 🐭🐭🐭🐭½**
NumberMaze makes practicing basic math skills a game. Children ages 5 to 12 can work through various mazes by solving numerical and word problems in counting, addition, subtraction, multiplication, and division. Based on five major math-textbook series for grades 1 to 6. Version 1.0 reviewed. Version 1.2 shipping. Requires Mac Plus or later; color-capable Mac for color version. $49.95; NumberMaze Color, $69.95. Great Wave Software, 5353 Scotts Valley Dr., Ste. E, Scotts Valley, CA 95066. 408-438-1990. (Dec '89) ★ '88 Eddy [MF#704]

**Physics 🐭🐭🐭🐭½**
Physics is a capable, intelligent, well-designed study aid. Covers topics from vectors to thermodynamics to the nature of light. Animated experiments let you try out concepts. Version 1.2 shipping. Requires Mac Plus or later. $99.95. Brøderbund Software, Inc., P.O. Box 6125, 500 Redwood Blvd., Novato, CA 94948. 800-521-6263 or 415-382-4400. (Jan '88) [MF#705]

**The Playroom 🐭🐭🐭🐭🐭**
This highly entertaining educational program teaches basic concepts such as spelling, telling time, and counting with style. It's centered around a child-sized room furnished with a multitude of objects that spring to life with just a click. Version 1.0 reviewed. Requires Mac Plus or later with 2 MB of RAM. $49.95. Brøderbund Software, Inc., P.O. Box 6125, 500 Redwood Blvd., Novato, CA 94948. 800-521-6263 or 415-382-4400. (Sept '90) [MF#706]

**Talking Reader Rabbit 🐭🐭🐭🐭🐭**
Talking Reader Rabbit teaches 4-to-8-year-olds how to read with four elegant games that build on one another. Supports color. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac 512Ke or later. $69.95. The Learning Co., 6493 Kaiser Dr., Fremont, CA 94555. 800-852-2255 or 510-713-0230. (June '88) [MF#707]

**Type! 🐭🐭🐭🐭½**
Type! is a practical and flashy typing tutorial. Users can interrupt functions and move easily among them. Use of the Return key and space bar are assumed but never explained. Version 1.0 reviewed. Requires Mac 512Ke or later. $29.95. Brøderbund Software, Inc., P.O. Box 6125, 500 Redwood Blvd., Novato, CA 94948. 800-521-6263 or 415-382-4400. (Nov '88) [MF#708]

**Typing Instructor Encore 🐭🐭🐭🐭**
Encore is a Mac typing tutorial that makes good use of your computer's abilities instead of simply imitating a typewriter. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later. $29.95. Individual Software, Inc., 125 Shoreway Rd., Ste. 3000, San Carlos, CA 94070. 800-331-3313 or 415-595-8855. (Nov '88) [MF#709]

**Where in Time Is Carmen Sandiego? 🐭🐭🐭🐭½**
This program is the fourth in the popular Carmen Sandiego series. The previous releases used intriguing stories and characters to teach geography to young Mac users, but this package adds the element of time travel (sounds better than "history" and is much more fun). Version 1.0 reviewed. Version 1.3 shipping. Requires Mac Plus or later and a hard-disk drive. $49.95. Brøderbund Software, Inc., P.O. Box 6125, 500 Redwood Blvd., Novato, CA 94948. 800-521-6263 or 415-382-4400. (Apr '91) [MF# 710]

## ENTERTAINMENT

**3 in Three 🐭🐭🐭🐭🐭**
This popular game is an endlessly fascinating, frustrating, fun-filled collection of 80 animated puzzles. Appeals equally to smart kids of all ages. Nutty plot requires saving hapless number 3 after she falls off a spreadsheet into the hostile Land of Letters. Version 1.0 reviewed. Version 1.2 shipping. Requires Mac Plus or later. $49.95. Inline Design, 308 Main

MICE RATINGS .......🐭 ........🐭½ ............🐭🐭 ..............🐭🐭½ ...............🐭🐭🐭 ..............🐭🐭🐭½ ............🐭🐭🐭🐭 ..........🐭🐭🐭🐭½ ...........🐭🐭🐭🐭🐭

FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

St., Lakeville, CT 06039. 800-453-7671 or 203-435-4995. (Oct '91) ★ '91 Eddy [MF#711]

**Aqua Blooper Piper** 🐭🐭🐭🐭
Aqua Blooper Piper tests your plumbing skills when you're confronted with a customer's broken shower pipe. A fast-moving conveyor belt delivers an assortment of straight, curved, or twisted pipe sections that you must connect without fumbling. You are rewarded not for the shortest run of pipe but for installing as much pipe as possible — without leaks. Version 1.1 reviewed. Requires Mac Plus or later and System 6.03 or later. $49.95. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908. 800-359-4920 or 408-484-9228. (Apr '92) [MF#712]

**Armor Alley** 🐭🐭🐭🐭
More than an exercise in blowing up tanks, helicopters, and personnel, Armor Alley requires a solid understanding of military strategy, planning, and the value of human life. You are rewarded for saving lives rather than for ending them needlessly. Has individual and multiplayer modes. Armor Alley gives your brain a workout instead of letting you rely on hand/eye coordination. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later and System 6.03 or later. $49.95. Three-Sixty Pacific, 2105 S. Bascom Ave., Ste. 380, Campbell, CA 95008. 409-776-2187 or 408-879-9144. (Feb '91) [MF#713]

**Balance of the Planet** 🐭🐭🐭🐭
Balance of the Planet is similar to Balance of Power but with the object of securing global environmental survival. It's difficult to win, but eventually you should be able to get positive scores and your awareness of environmental issues will be greatly enhanced. Version 1.0 reviewed. $24.95. Accolade, 5300 Stevens Creek Blvd., San Jose, CA 95129. 800-245-7744 or 408-985-1700. (Aug '90) [MF#714]

**Chessmaster 2000** 🐭🐭🐭🐭🐭
This challenging chess program can appeal to novices as well as experts. You can view the board from 2-D or 3-D perspectives and also turn it for a better look. Play is smooth and easy, and the program responds by voice. Version 1.0 reviewed. Version 1.02 shipping. Requires Mac Plus or later. $44.95. Software Toolworks, 60 Leveroni Ct., Novato, CA 94949. 800-234-3088 or 415-883-3000. (July '87) [MF#715]

**Crystal Quest** 🐭🐭🐭🐭½
Crystal Quest combines all the good elements of nearly every video game. Move a piece around to gobble up points and crystals. Shoot the nasties, and get through the goal before they get you. Excellent sound effects. Supports color. Includes Critter Editor for customizing the opposition. Version 2.2X shipping. Requires Mac Plus or later and System 6.03 or later. $49.95. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908. 800-359-4920 or 408-484-9228. (Apr '88) ★ '88 Eddy [MF#716]

**Dark Castle** 🐭🐭🐭🐭🐭
Dark Castle is an outstanding achievement in action games, integrating sound with superb animation and graphics. You need better-than-average hand/eye coordination, but it's well worth the effort. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later. $49.95. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Apr '87) ★ '87 Eddy [MF#717]

**Darwin's Dilemma** 🐭🐭🐭🐭½
Darwin's Dilemma provides intriguing, deceptively simple entertainment. You manage a game piece called Darwin, which moves other icons to combine them within an invisible grid. These icons include genuine low life such as amoebas or paramecia, and your progress in managing recombinant life forms lets you graduate to jellyfish, octopi, and crabs. Version 1.0.1 reviewed. Version 2.0 shipping. Requires Mac Plus or later. $49.95. Inline Design, 308 Main St., Lakeville, CT 06039. 800-453-7671 or 203-435-4995. (Mar '91) [MF#718]

**Falcon** 🐭🐭🐭🐭½
Falcon simulates an F-16 fighter jet dogfighting with gut-tightening, sweat-making realism. Take on MiGs and dodge SAMs. Can be played via modem against other players. Version 1.0 reviewed. Version 2.2.1 shipping. Requires Mac Plus or later. $59.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. 510-522-3584. (May '88) [MF#719]

**Ferrari Grand Prix** 🐭🐭🐭🐭
Ferrari Grand Prix is an exciting racing-car-simulation game. Mastering it takes time and effort. Five courses are built in to the program. You can also design custom courses and backgrounds. Version 1.0 reviewed. Version 1.65 shipping. Requires Mac Plus or later. $59.95. Bullseye Software, P.O. Box 7900, Incline Village, NV 89450. 702-831-2523. (July '87) [MF#720]

**Halls of Montezuma** 🐭🐭🐭🐭½
This classic move-the-units war game's scenarios cover famous U.S. Marine battles. Color and black-and-white versions with good performance and play. You can also create scenarios. Requires Mac Plus or later. $44.95. Strategic Studies Group, Inc., 1747 Orleans Ct., Walnut Creek, CA 94598. 510-932-3019. (Apr '90) [MF#721]

**Handwriting Analyst** 🐭🐭🐭🐭½
Handwriting Analyst produces a personality profile based on questions about your handwriting. Simple and amazing. Version 1.2 reviewed. Version 4.0 shipping. Requires Mac Plus or later. $69.95. Wintergreen Software, Inc., P.O. Box 15899, New Orleans, LA 70175. 800-321-9479 or 504-899-0378. (Apr '88) [MF#722]

**Ishido** 🐭🐭🐭🐭🐭
Ishido is a flawless, sophisticated strategy game with a few twists. Limited edition comes in an expensive, fancy wooden box. Programming is elegant and polished. Requires Mac Plus or later; color requires 2 MB of RAM and a hard-disk drive. Limited edition, $175; standard edition, $54.95. Publishing International, P.O. Box 70790, Sunnyvale, CA 94086. 800-535-2983 or 408-738-4311. (May '90) [MF#723]

**Klondike** 🐭🐭🐭🐭🐭
Klondike is a version of solitaire uses video-gamelike scoring to create a superb, totally addictive game. Simple to play — nearly impossible to stop playing. Version 3.3 reviewed. Version 5.0.1 shipping. Shareware, $10. Unison Software, Inc., 675 Almanor Ave., Sunnyvale, CA 94086. 408-245-3000. (Dec '87) [MF#724]

**Mission Starlight** 🐭🐭🐭🐭
Mission Starlight is a throwback to Star Wars-type arcade games. It lets you swoop in low and fast, vaporizing foreign objects and lobbing missiles into the enemy power plant. Version 1.1 reviewed. Version 1.1.6 shipping. Requires Mac Plus or later and System 6.03 or later. $49.95. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908. 800-359-4920 or 408-484-9228. (Oct '90) [MF#725]

**Mutant Beach** 🐭🐭🐭🐭
Mutant Beach leaves you happily stranded on an island of idols and mutated creatures run amok. Has gorgeous color and a pulsing reggae soundtrack (in System 7 land). Animation and characters are first rate, but some sequences are overly repetitive. Version 1.02 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.07 or later, and a hard-disk drive; color display system highly recommended. $59.95. Inline Design, 308 Main St., Lakeville, CT 06039. 800-453-7671 or 203-435-4995. (June '92) [MF#726]

**Oids** 🐭🐭🐭🐭🐭
Oids is one of the finest Mac arcade-style games ever produced. Futuristic action is based on your rescue of enslaved tiny Oids from hostile planets full of missiles and artillery. Limited to black-and-white or 16 colors. Version 1.0 reviewed. $44.95. Software Heaven (FTL Games), 6160 Lusk Blvd., Ste. C206, San Diego, CA 92121. 619-453-5711. (June '91) [MF#727]

**Pipe Dream** 🐭🐭🐭🐭🐭
Pipe Dream demands a nearly perfect mixture of strategy and speed. You must build a pipeline fast enough to prevent the stuff in the line from running out — that's it. Addictive. Has copy-protection scheme. Version 1.0 reviewed. Version 1.2 shipping. Requires Mac Plus or later. $24.95. Lucasfilm Ltd., Games Division, P.O. Box 10307, San Rafael, CA 94912. 800-782-7927 or 415-721-3300. (May '90) [MF#728]

**PlayMaker Football** 🐭🐭🐭🐭½
This is an excellent combination of football and computer game. More of a coaching simulation than a play simulation, it gives priority to strategic skills rather than animation — but the animation is reasonably good. Version 1.0 reviewed. Requires Mac Plus or later. $49.95. Brøderbund Software, Inc., P.O. Box 6125, 500 Redwood Blvd., Novato, CA 94948. 800-521-6263 or 415-382-4400. (May '91) [MF#729]

**Railroad Tycoon** 🐭🐭🐭🐭
This excellent simulation environment revolves around building trains, schedules, and stations and laying miles of track. Includes natural objects such as trees and mountains as well as cities and a variety of geographic and time options. Provides fun animations and sound, which can be turned off for faster performance. Supports color. Version 1055.01 reviewed. Requires Mac Plus or later with 2.5 MB of RAM and System 6.03 or later. $69.95. MicroProse Software, 180 Lakefront Dr., Hunt Valley, MD 21030. 301-771-1151. (Jan '92) [MF#730]

**RoboSport** 🐭🐭🐭
Billed as a thinking man's shoot-'em-up game, RoboSport is actually a battle-strategy simulation that pits teams of robots against each other. Choose from predesigned battle scenarios, or program your robots' actions. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later and System 6.03 or later; 2 MB of RAM and a hard-disk drive required for color version. $59.95. Maxis, 2 Theatre Square, Ste. 230, Orinda, CA 94563. 800-336-2947 or 510-254-9700. (Aug '91) [MF# 731]

**SimCity** 🐭🐭🐭🐭
This animated game is also a city-planning simulator. Comes with eight scenarios. Evaluation window gives you instant feedback on your efforts. Version 1.0 reviewed. Version 1.3 shipping. Requires Mac Plus or later and System 6.03 or later; 2 MB of RAM and a hard-disk drive required for color version. $59.95. Maxis, 2 Theatre Square, Ste. 230, Orinda, CA 94563. 800-336-2947 or 510-254-9700. (June '89) ★ '89 Eddy [MF#732]

**SimEarth** 🐭🐭🐭🐭½
In SimEarth, you are the Supreme Being who guides an Earth-like planet's species from evolution to civilization and finally to Exodus toward the distant galaxies before destruction. Version 1.0 reviewed.

**MICE RATINGS** .......🐭 ........🐭½ ............🐭🐭 .............🐭🐭½ ..............🐭🐭🐭 .............🐭🐭🐭½ ............🐭🐭🐭🐭 ..........🐭🐭🐭🐭½ .............🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

Requires Mac Plus or later and System 6.03 or later; 2 MB of RAM and a hard-disk drive required for color. $69.95. Maxis, 2 Theatre Square, Ste. 230, Orinda, CA 94563. 800-336-2947 or 510-254-9700. (July '91) [MF#733]

**Sky Shadow 🐭🐭🐭🐭🐭**
Sky Shadow is a must for users who appreciate fast action and have a sense of humor. It features a funky flying machine kerchunking across a comic landscape. Version 1.02 reviewed. Version 1.12 shipping. Requires Mac Plus or later with System 6.03 or later. $49.95. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908. 800-359-4920 or 408-484-9228. (Oct '90) [MF#734]

**Space Quest I 🐭🐭🐭🐭**
Space Quest I is a 3-D animated adventure in which you play a janitor in a dicey situation. The goal is to get off your ship before it explodes and save the Earnon System. The game is part of a 4-part series. Version 1.0 reviewed. Version 2.0 shipping. $49.95. Sierra On-Line, Inc., P.O. Box 485, Coarsegold, CA 93614. 800-326-6654 or 209-683-4468. (Sept '87) [MF#735]

**Spaceship Warlock 🐭🐭🐭🐭½**
Not a conventional shoot-'em-up, this highly innovative CD-ROM rewards your exploration skills with a dazzling graphic environment, eerie sounds and speech, and an addictive ride through outer-space animations. Characters and plot are right up there with the best of sci-fi comic books, with a splash of NASA-style 3-D modeling. Version 1.0 reviewed. Requires color display and CD-ROM drive. $89.95. Reactor, Inc., 445 W. Erie Ave., Chicago, IL 60610. 312-573-0800. (Feb '92) [MF#736]

**Spectre 🐭🐭🐭🐭½**
Spectre is a supremely well-designed arcade game that pits tank against tank in a futuristic version of Capture the Flag. Game display reveals an eerie, impressive, nocturnal landscape. Great sound effects and color support. Can be played by one user versus the computer, but the real thrill comes from battling as many as five other Spectre owners over an AppleTalk network. Addictive, amazingly fast, and a serious threat to office productivity. Version 1.0 reviewed. Requires Mac Plus or later. $59.95. Velocity Development, P.O. Box 875, Palatine, IL 60078. 708-991-0594. (May '92) [MF#737]

**Strategic Conquest 🐭🐭🐭🐭½**
Strategic Conquest challenges you to discover an unexplored world and conquer it by manufacturing and deploying armies, ships, and planes. Version 1.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later. $59. Delta Tao Software, Inc., 760 Harvard Ave., Sunnyvale, CA 94087. 800-827-9316 or 408-730-9336. (Feb '88) [MF#738]

**Stratego: The Computer Game 🐭🐭🐭🐭½**
The Mac version significantly improves on the classic board game in many ways. The object of the game is to capture your opponent's headquarters (symbolized by the enemy flag) before they capture yours. Each side deploys an army of 32 officers, 1 spy, 6 bombs, and 1 flag. Has a copy-protection scheme. Version 1.0 reviewed. Requires Mac Plus or later. $49.95. Accolade, 5300 Stevens Creek Blvd., San Jose, CA 95129. 800-245-7744 or 408-985-1700. (May '91) [MF#739]

**Tesserae 🐭🐭🐭🐭½**
Tesserae has a simple premise: Clear the game board of colored tiles by jumping one over another in as few moves as possible. Deceptively hard to master. Color is essential and governs which tiles you can jump and where you can land. In black-and-white mode, tiles have differing patterns. Gorgeous color with a satisfying pyrotechnic display once you're down to your last tile. Excellent sound effects. Version 1.04 reviewed. Requires Mac Plus or later. $49.95. Inline Design, 308 Main St., Lakeville, CT 06039. 800-453-7671 or 203-435-4995. (Mar '92) [MF#740]

**Welltris 🐭🐭🐭🐭½**
Welltris is an arcade game that is a sequel to Tetris. Maneuver falling shapes in 3-D. Has musical accompaniment, options for previewing shapes, and color or black-and-white versions. Copy-protected. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later. $39.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. 510-522-3584. (Oct '90) [MF#741]

## FINANCIAL MANAGEMENT

**Accountant, Inc. 🐭🐭🐭🐭**
Accountant, Inc., offers a great deal of functionality, a high degree of conformance to the Mac interface, and solid accounting and bookkeeping fundamentals. Uses double-entry accounting. Compatible with AppleShare and MultiFinder. Version 1.01 reviewed. Version 3.0 shipping. Requires Mac Plus or later and a hard-disk drive. $595. Softsync, Inc., 800 S.W. 37th Ave. (North Tower), Ste. 355, Coral Gables, FL 33134. 800-933-2537 or 305-444-0080. (Aug '90) ★ '91 Eddy [MF#742]

**ACCPAC Simply Accounting 🐭🐭🐭🐭**
ACCPAC Bedford Simply Accounting has six ledgers and eight journals for handling the needs of most small-to-medium-sized businesses. Better Mac interface than most. Payroll-tax labels can't be modified, which forces you to subscribe to Bedford's yearly-update service. Version 1.03 reviewed. Version 1.3 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $199; updates, $100 per year. Computer Associates International, Inc., One Computer Associates Plaza, Islandia, NY 11788. 800-531-5236 or 516-342-5224. (Sept '88) [MF#743]

**atOnce! 🐭🐭🐭🐭½**
atOnce! is an integrated accounting package with general-ledger, accounts-payable, accounts-receivable, and payroll modules. Primarily for small businesses. Features very good security, customizable reports, flexible fiscal calendar with 12 or 13 periods per fiscal year and as many as 26 open periods stored on-line. Version 1.0 reviewed. Version 1.2 shipping. Requires Mac Plus or later and a hard-disk drive. $395. Peachtree Software, 1505 Pavilion Pl., Norcross, GA 30093. 800-247-3224 or 404-564-5800. (Nov '89) ★ '89 Eddy [MF#744]

**CashLedger 🐭🐭🐭🐭**
CashLedger uses cash-basis accounting rather than accrual accounting. Double-entry bookkeeping is supported transparently. Has transaction journals. No customer credit limits or finance-charge calculations. Version 1.2 reviewed. Version 1.5 shipping. Requires Mac Plus or later. $195; upgrade to MultiLedger, $200. CheckMark Software, Inc., 1520 E. Mulberry, Ste. 200, Fort Collins, CO 80524. 800-444-9922 or 303-484-3541. (May '90) [MF#745]

**CheckFree 🐭🐭🐭½**
CheckFree is bill-paying software that works with a dedicated service. Bills are paid by printed draft or by electronic-transfer method. Your regular monthly bank statements show all CheckFree electronic-funds transfers. The software works well but has problems with MultiFinder. Terrible manual. Version 1.5 reviewed. Requires Mac 512Ke or later, System 5.0 or later, and Hayes-compatible modem; hard-disk drive recommended. $33.95 including shipping; service costs $9.95 per month for up to 20 payments, $3.50 for each additional 10 payments. CheckFree Corp., 720 Greencrest Dr., Westerville, OH 43081. 800-882-5280 or 614-898-6000. (Sept '91) [MF#746]

**Checkwriter 🐭🐭🐭🐭**
This personal-accounting package uses your checkbook like a ledger. Limited financial planning, but features include an overbudget warning for specified categories, a transfer command that shifts funds between accounts, an address database, drawing tools for designing checks, a Quicken file converter, good reporting options, and an updating function for recurring transactions. Outputs checks on laser printers or ImageWriters. Version 3.1 reviewed. Version 4.0 shipping. Requires Mac Plus or later and System 6.05 or later; hard-disk drive recommended. $69. Aatrix Software, Inc., 523 N. Washington Ave., Grand Forks, ND 58203. 800-426-0854 or 701-746-6801. (Sept '91) [MF#747]

**Components Accounts Payable 🐭🐭🐭🐭½**
This part of an integrated accounting series provides state-of-the-art flexibility, integrity, and functionality. The easy-to-use module sets up detailed account information, including bank data, payment terms, and expense items for disbursements. Version 1.0 reviewed. Requires 68030 CPU or higher with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $795. Satori Software, 2815 Second Ave., Ste. 295, Seattle, WA 98121. 206-443-0765. (Oct '91) [MF#748]

**Components Accounts Receivable 🐭🐭🐭🐭½**
This part of an integrated accounting series provides state-of-the-art flexibility, integrity, and functionality. Fast and easy to use. For small-to-medium-sized businesses that don't require a multiuser accounting system. Thorough, well-designed documentation. Version 1.0 reviewed. Requires 68030 CPU or higher with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $795. Satori Software, 2815 Second Ave., Ste. 295, Seattle, WA 98121. 206-443-0765. (Oct '91) [MF# 749]

**Components General Ledger 🐭🐭🐭🐭🐭**
This part of an integrated accounting series provides state-of-the-art flexibility, integrity, and functionality. Report generator may be strong enough to entice you to import data and use it with other accounting systems. Especially appealing to users with database or graphics backgrounds. Several optional modules are available. Version 1.0 reviewed. Requires 68030 CPU or higher with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $795; Job Cost/Time Billing, $1,495; Accounts Receivable, $795; Accounts Payable, $795. Satori Software, 2815 Second Ave., Ste. 295, Seattle, WA 98121. 206-443-0765. (Oct '89) [MF#750]

**Computerized Classic Accounting 🐭🐭🐭🐭½**
Computerized Classic Accounting is an Excel-based integrated accounting system. The spreadsheet interface is intuitive, working like traditional paper journals and ledgers. Version 1.5 reviewed. Version 3.0 shipping. Requires Mac SE or later with 2 MB of RAM, Excel 3.0 or later, and a hard-disk drive. $195; Client Write-Up version for accountants,

$495; enhanced version, $695. Absolute Solutions, 3142 Vista Way, Ste. 400, Oceanside, CA 92056. 800-633-7666 or 619-966-8000. (Jan '90) [MF#751]

**DacEasy Light Checkbook Accounting 🐭🐭🐭🐭**
Using this well-done, functional system for small-business and personal accounting is like using a checkbook. After the initial setup of personal data, preferred forms, and passwords, you have a full range of bookkeeping options, reports, invoices, and transaction analyses. Version 2.0 reviewed. $69.95. DacEasy, Inc., 17950 Preston Rd., #800, Dallas, TX 75252. 800-877-8088 or 214-248-0205. (May '91) [MF#752]

**Flexware 🐭🐭🐭🐭**
Flexware is based on a proprietary language. This true multiuser accounting system must be professionally installed — it can't be used off the shelf. Highly modular and extremely customizable. Basic modules cover all aspects of accounting. Version 6.02C reviewed. Version 6.91 shipping. Requires Mac Plus or later with 4 MB of RAM and a hard-disk drive. $895 per module, except Order Processing, Purchasing, Sales/Lead Tracking, and Request for Service, $795 each; Point-of-Sale, $695; Job Cost, $995. Flexware, Inc., P.O. Box 68, 2255 Westlake Blvd., Tahoe City, CA 96145. 800-527-6587 or 916-581-6999. (May '90) [MF#753]

**Great Plains Accounting Series 🐭🐭🐭🐭**
This series consists of several modules covering all aspects of accounting. Excellent documentation. Looks and feels like a mainframe accounting system. Outstanding functionality for serious users. Version 5.2 reviewed. Version 6.0 shipping. Requires Mac SE or later and a hard-disk drive. Per module, $795, except: Import Manager, $495; Executive Advisor, $595; Job Cost, $995; Reconciliation, $695; Import Manager, $495; Developer Toolbox, $175; Network Manager, $995 for four users. Great Plains Software, 1701 S.W. 38th St., Fargo, ND 58103. 800-456-0025 or 701-281-0550. (May '90) [MF#754]

**Insight Expert Payroll 🐭🐭🐭🐭½**
Insight Expert Payroll is part of the Insight Expert series. Can be used as stand-alone program but works best with the other modules. Has an icon bar for quick access to all parts of the program. It has special tax-law-updating capabilities — a major consideration in a payroll program. Large, excellent manual. Requires Mac Plus or later, System 4.2 or later, and a hard-disk drive. $695 (includes one free tax update). Peachtree Software, 1505 Pavilion Pl., Norcross, GA 30093. 800-247-3224 or 404-564-5800. (Apr '90) [MF#755]

**Insight Expert Series 🐭🐭🐭🐭½**
Insight is a high-powered accounting program for small-to-medium-sized businesses. Modules include Accounts Receivable, Accounts Payable, General Ledger, Inventory Control, Time Billing, and Payroll. Version 1.0 reviewed. Requires Mac Plus or later, System 4.2 or later, and a hard-disk drive. $695 per module. Peachtree Software, 1505 Pavilion Pl., Norcross, GA 30093. 800-247-3224 or 404-564-5800. (Dec '86) ★ '86 Eddy [MF#756]

**M.Y.O.B. 🐭🐭🐭🐭½**
Mind Your Own Business is an excellent value, functional enough for small-business accountants but accessible and intuitive enough for novices. It has integrated general-ledger, checkbook, accounts-receivable, accounts-payable, and inventory modules. There's no integrated payroll, and it lacks the ability to break out data by departments. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $249. Teleware, Inc., 22 Hill Rd., Parsippany, NJ 07054. 800-322-6962 or 201-334-1154. (Apr '91) [MF#757]

**MacInTax 🐭🐭🐭🐭½**
MacInTax is an excellent tool for preparing federal and state tax forms. Intuitive and easy to use, with all separate forms automatically interlinked for accurate recalculation. Accepts data from the leading personal-finance programs. Displays in WYSIWYG format and then prints IRS-accepted forms on PostScript laser or dot-matrix printers. Many state-tax-form sets are also available. Provides logical Next Step feature, along with well-implemented Balloon Help (for System 7 users). Version 1991 reviewed. Requires Mac Plus or later, System 4.2 or later, and a hard-disk drive. Federal, $99.95 (annual update, $49.95); state, $69.95 (update, $34.95). ChipSoft, Inc., 6330 Nancy Ridge Rd., Ste. 103, San Diego, CA 92121. 619-453-8722. (Apr '92) ★ '86, '89 Eddy [MF#758]

**MacMoney 🐭🐭🐭🐭**
MacMoney is a full-featured financial manager that produces a variety of reports and graphs. Excellent for home-based businesses. Version 3.5 reviewed. Version 3.52 shipping. Requires Mac Plus or later. $119.95. Survivor Software Ltd., 11222 La Cienega Blvd., Ste. 450, Inglewood, CA 90304. 310-410-9527. (Sept '91) ★ '86 Eddy [MF#759]

**Managing Your Money 🐭🐭🐭🐭🐭**
Managing Your Money is Andrew Tobias' full-featured, well-supported personal financial-management program. Can print checks and keep detailed accounts. Excellent for users who have moderately complex finances or investments. Version 4.0 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $219.98. Meca Software, Inc., 327 Riverside Ave., Westport, CT 06880. 203-226-2400. (Sept '91) [MF#760]

**Multi-user Desktop Accounting (MDA) 🐭🐭🐭🐭**
Multi-user Desktop Accounting uses the Omnis database manager. Sets the standard for multiuser performance and accounting functionality in the off-the-shelf market. There are nine fully integrated modules and eight user-security classifications. Version 2.05 reviewed. Version 2.07 shipping. Mac Plus or later with 4 MB of RAM and a hard-disk drive. Single-user version, $1,795; five users, $2,795; ten users, $3,795. Logisoft, Inc., 128 Villa Ct., Lafayette, CA 94549. 510-939-3556. (May '90) [MF# 761]

**MultiLedger 🐭🐭🐭🐭½**
MultiLedger is an integrated general-ledger, accounts-receivable, accounts-payable, and inventory system. It does batch printing, handles multiple companies, tracks budgets, and has high-resolution-graphics statement printing. Double-entry bookkeeping is supported transparently. Has transaction journals but no customer credit limits. Version 1.3 reviewed. Version 2.0 shipping. Requires Mac Plus or later. MultiLedger, $395; multiuser version, $695. CheckMark Software, Inc., 1520 E. Mulberry, Ste. 200, Fort Collins, CO 80524. 800-444-9922 or 303-484-3541. (May '90) [MF# 762]

**Payroll 🐭🐭🐭🐭**
Payroll is a stand-alone, specialized application that can operate as a module within MultiLedger or CashLedger. Version 3.5 reviewed. Version 4.6 shipping. Requires Mac Plus or later. $295. CheckMark Software, Inc., 1520 E. Mulberry, Ste. 200, Fort Collins, CO 80524. 800-444-9922 or 303-484-3541. (May '90) [MF# 763]

**ProfitAbility Professional 🐭🐭🐭🐭**
This HyperCard-based single-entry-bookkeeping system, with its emphasis on ease of use and reporting, is ideal for small businesses that are looking for a do-it-yourself time-and-billing package. Handles general-ledger accounts, check printing, invoicing, price estimates, basic inventory control, time-and-materials tracking, and payroll (including federal taxes, FICA, and Medicare costs). Includes HyperCard 2.1. Version 1.4 reviewed. Requires Mac Plus or later with 2 MB of RAM. $249. Wetzel & Co., Inc., 147 E. Rocks Rd., Norwalk, CT 06851. 800-635-7849 or 203-846-2504. (Jan '92) [MF#764]

**Quicken 🐭🐭🐭🐭🐭**
Quicken is an excellent program for home budgets, cash-flow management, and tax-record keeping. Mimics your checkbook, so tracking finances is easy and intuitive. Provides detailed, customizable reports supporting tax deductions, expenses, and sources of income for U.S. federal and Canadian tax forms. Offers CheckFree electronic-bill-paying support. Lacks standard accounting safeguards and advanced features for serious business use. Version 3.0 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $69.95. Intuit, Inc., P.O. Box 3014, Menlo Park, CA 94026. 800-624-8742 or 415-322-0573. (Feb '92) ★ '88, '91 Eddy [MF#765]

**Rags to Riches 🐭🐭🐭🐭**
Rags to Riches has separate general-ledger, accounts-receivable, accounts-payable, inventory, and professional-billing modules. Transactions automatically post through all relevant modules. Lacks recurring-transaction ability. Version 1.0 reviewed. Version 3.11 shipping. Requires Mac 512Ke or later. $199.95 per module; package of General Ledger, Accounts Payable, and Accounts Receivable, $495. Chang Laboratories, Inc., 3350 Scott Blvd., Bldg. 25, Santa Clara, CA 95054. 408-727-8096. (May '90) [MF#766]

**Sales and Marketing Forecasting Toolkit 🐭🐭🐭🐭½**
This Excel-based productivity package has 18 worksheets, 8 charts, and 1 macro sheet. You create graphs visually, and then the program shows you the numbers needed to substantiate them. Version 2.0 reviewed. Requires Mac Plus or later and Microsoft Excel. $149.95. Palo Alto Software, 260 Sheridan Ave., Ste. 219, Palo Alto, CA 94306. 800-229-7526 or 415-325-3190. (May '90) [MF#767]

**SBT Database Accounting Library: Series Six Plus 🐭🐭🐭🐭**
The multiuser SBT Database Accounting Library is based on the FoxBase+ engine. Very fast. Has 16 integrated modules. Can support as many as 99 companies with as many as 999 departments each. Version 3.0 reviewed. Version 6.35 shipping. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $695 per module. SBT Corp., One Harbor Dr., Sausalito, CA 94965. 415-331-9900. (May '90) [MF#768]

**TimeMinder 🐭🐭🐭🐭**
TimeMinder is an application for analysis and a DA for recording data. Each client's time slips are stored in separate files. Batch entry is easy. The package's interface needs polishing, and layout isn't WYSIWYG, making reporting unnecessarily difficult. Version 2.1.6 reviewed. Version 2.5 shipping. Requires Mac Plus or later and System 6.05 or later; hard-disk drive recommended. $299. Aatrix Software, Inc., 523

**MICE RATINGS** ....... 🐭 ........ 🐭½ ............ 🐭🐭 ............. 🐭🐭½ .............. 🐭🐭🐭 ............. 🐭🐭🐭½ ........... 🐭🐭🐭🐭 .......... 🐭🐭🐭🐭½ ............. 🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

N. Washington Ave., Grand Forks, ND 58203. 800-426-0854 or 701-746-6801. (Apr '90) [MF#769]

**Timeslips III** 🐭🐭🐭🐭

Timeslips III is for professionals who bill by the hour. It works as a MultiFinder-compatible application for analysis and reporting and as a DA for recording or entering data. Batch entry is easy, and most descriptions can be customized. Excellent documentation and on-line help. Difficult setup procedure. Version 2.0e reviewed. Version 2.1 shipping. Requires Mac Plus or later with System 6.03 or later; hard-disk drive recommended. $299.95; 5-user version, $699.95. Timeslips Corp., 239 Western Ave., Essex, MA 01929. 800-285-0999 or 508-768-6100. (Feb '91) ★ '88 Eddy [MF#770]

**WealthBuilder** 🐭🐭🐭🐭

This easy-to-use financial planner is a useful tool for knowledgeable long-term investors. Includes an updatable comprehensive securities database. Version 1.0 reviewed. Version 1.02 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $169.95. Reality Technologies, 3624 Market St., Philadelphia, PA 19104. 800-346-2024 or 215-387-6055. (Sept '91) ★ '90 Eddy [MF#771]

**WOS Fund Accounting** 🐭🐭🐭

WOS Fund Accounting is a multiuser system designed to meet the needs of government and nonprofit agencies. Contains general-ledger, payroll, purchase-order/voucher, and accounts-receivable modules. Can handle multiple-fund accounting and multiple-year adjustments. Requires Mac Plus or later. $4,995. Farallon Computing (Kansas office), 1321 Wakarusa Dr., Ste. 2010, Lawrence, KS 66049. 800-843-8101 or 913-843-8101. (May '90) [MF# 772]

## GENERAL HARDWARE & ACCESSORIES

**CasioLink for the Macintosh** 🐭🐭🐭½

The CasioLink is a hardware/software package that links the popular Casio BOSS series of electronic organizers to a Mac. The software is a bit limited and clunky. Can import and export to text files and HyperCard stacks but has some trouble importing from stacks. Version 1.01 reviewed. Version 2.0 shipping. Requires Mac Plus or later and Casio BOSS. $129.95. Casio, 570 Mount Pleasant Ave., Dover, NJ 07801. 201-361-5400. (May '90) [MF# 773]

**Hewlett-Packard 48SX Calculator** 🐭🐭🐭½

This powerful and versatile calculator supports file transfers with Macs, using the Mac Kermit program. The calculator has a powerful graphical equation editor and a matrix editor that resembles a spreadsheet program. $350; Serial Interface Kit, $59.95. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (Mar '91) [MF#774]

**MacTable** 🐭🐭🐭🐭🐭

The MacTable is an elegant Danish-style worktable that holds a Mac and a printer with room to spare. Optional cabinet. 46-inch table, $329; 58-inch table, $359; cabinet, $159 (direct). ScanCo, P.O. Box 3217, Redmond, WA 98073. 800-722-6263 or 206-481-5434. (June '90) [MF#775]

**Outbound Notebook 2030** 🐭🐭🐭½

Fast, light, and upgradable, the Notebook 2030 has up-to-date, standard Mac ROM chips preinstalled. Upgrade path for the Notebook 2000 series includes faster CPUs, math coprocessor, and greater hard-disk-drive capacities. Has built-in microphone and all the usual Mac ports. Does not accommodate internal modem. With 4 MB of RAM and 40-MB hard-disk drive, $3,299; optional 68881 coprocessor, $149. Outbound Systems, 4840 Pearl E. Cir., Boulder, CO 80301. 303-786-9200. (Feb '92) [MF#776]

## GRAPHICS & DESIGN

**BannerMania** 🐭🐭🐭🐭

BannerMania is a specialty graphics program that lets you print banners, bumper stickers, signs, posters, and T-shirt designs. Includes 19 custom outline fonts that scale and print at any size. Also imports Type 1 fonts. Version 1.0 reviewed. Requires LaserWriter or ImageWriter II. $59.95. Brøderbund Software, Inc., P.O. Box 6125, 500 Redwood Blvd., Novato, CA 94948. 800-521-6263 or 415-382-4400. (Oct '91) [MF#777]

**Capture** 🐭🐭🐭½

Capture is a reliable screen-capture utility. It can capture full or partial screens either to the Clipboard or to a PICT file. Supports 8- and 32-bit color. May have to be renamed on your Mac to avoid INIT conflicts. Version 2.0 reviewed. Version 4.0 shipping. Requires Mac Plus or later and System 6.03 or later. $129.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. 818-991-6540. (Jan '90) [MF#778]

**Cheshire** 🐭🐭🐭🐭

Cheshire is an INIT that lets you copy and paste tab-delimited data into simple charts, which can be placed in a document. The only programs from which this handy utility can extract data are MacWrite II, Word, MacDraw II, and PageMaker. Version 1.0 reviewed. Requires Mac Plus or later. $125. Abbott Systems, 62 Mountain Rd., Pleasantville, NY 10570. 800-552-9157 or 914-747-4171. (Feb '91) [MF#779]

**DeskPaint and DeskDraw** 🐭🐭🐭½

These reasonably full-featured, 24-bit-color painting and drawing programs come as DAs. Flexible calibration options for vertical and horizontal rulers. Printer resolution can reach 4,000 dpi. Version 3.03 reviewed. Version 3.07 shipping. Requires a color display system, 2 MB of RAM, and a hard-disk drive. $199.95. Zedcor, 4500 E. Speedway, Ste. 22, Tucson, AZ 85712. 800-482-4567 or 602-881-8101. (Mar '91) [MF#780]

**FlexiGraphs** 🐭🐭🐭🐭

FlexiGraphs lets you start with basic charts that you can modify in many ways. The simple but elegant interface lets you add details and modify certain parts of charts while locking other areas down. Version 1.0 reviewed. Version 1.13 shipping. Requires Mac Plus or later. $149. Tree Star, Inc., 116 Memory Ln., Campbell, CA 95008. 800-366-6045 or 408-371-8343. (Apr '90) [MF#781]

**Image Analyst** 🐭🐭🐭½

Image Analyst is an image-processing program that lets you identify and analyze any element of an image. Measurements and statistics can be automatically or interactively generated from TIFF or PICT files or from captured video images. Version 7.1 reviewed. $2,000. Automatix, 1000 Tech Park Dr., Billerica, MA 01821. 508-667-7900. (July '90) [MF#782]

**Image Grabber** 🐭🐭🐭½

This DA screen-capture program can capture pull-down menus and convert 8- and 24-bit-color screens to 2-bit black-and-white files. Captures in MacPaint and PICT formats. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 6.03 or later. $49. Sabastian Software, P.O. Box 70278, Bellevue, WA 98007. 206-861-0602. (May '90) [MF#783]

**Mariah** 🐭🐭🐭½

Formerly called PictureBase, Mariah is a powerful graphics librarian. Can store paint- and PICT-formatted items and attach keywords for later search and retrieval. Version 1.2 PictureBase reviewed. Version 1.1.1 Mariah shipping. Requires Mac Plus or later and System 6.05 or later. $149; upgrade from PictureBase, $49; upgrade from Curator, $69. Symmetry Software Corp., 8603 E. Royal Palm Rd., Ste. 110, Scottsdale, AZ 85258. 800-624-2485 or 602-998-9106. (Sept '87) ★ '86 Eddy [MF#784]

**Multi-Ad Search** 🐭🐭🐭🐭

Multi-Ad Search lets you organize a customized database of as many as 32,000 graphics files. Can create thumbnail PICT images with text descriptions for searching and identification. Allows limited search and sort criteria, and interface displays only six thumbnail images at once. Ideal for DTP users who need to catalog and access large graphics libraries. Supports TIFF, paint, EPS, PICT, or ImageStudio RIFF. Version 1.0 reviewed. Requires Mac II series or higher with 2 MB of RAM, a hard-disk drive, a removable-media drive, and a color display system. $199. Multi-Ad Services, Inc., 1720 W. Detweiller Dr., Peoria, IL 61615. 800-447-1950 or 309-692-1530. (Apr '92) [MF# 785]

**PrePrint** 🐭🐭🐭🐭

Intended as a sophisticated color-separation printing utility for PageMaker documents. It handles color TIFF and EPS files with few problems; unpredictable with PICT images. Version 1.0 reviewed. Version 1.5 shipping. Requires Mac SE or higher with 2 MB of RAM and a hard-disk drive. $495; upgrade, $30. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Jan '91) [MF#786]

**Screenshot** 🐭🐭🐭🐭🐭

This simple, powerful screen-capture utility can precisely capture and save selected screen items, without extraneous pixels surrounding captured image. Images can be printed or saved immediately in bit-mapped paint, PICT, 24-bit-color, Clipboard, Scrapbook, or StartupScreen formats. Version 1.1 reviewed. $59.95. Baseline Publishing, Inc., 1770 Moriah Woods Blvd., Ste. 14, Memphis, TN 38117. 800-926-9677 or 901-682-9676. (Mar '91) [MF#787]

**SnapJot** 🐭🐭🐭½

SnapJot is a DA/INIT utility that lets you capture full or partial screens. Captured window remains on-screen within a real window, which you can use as you work. All or part of a screen, window, dialog box, or menu can be captured as a color or a black-and-white image. Supports PICT or paint formats. Version 3.0 reviewed. $59.95. Wildflower Software, 21W171 Coronet Rd., Lombard, IL 60148. 708-916-9360. (June '91) [MF#788]

## GRAPHICS & DESIGN/CAD

**Aperture** 🐭🐭½

Aperture combines a CAD program with a database manager. Some of its features are difficult to access, but generally the package is very useful. Decent flat-file-database manager. Drawing portion of the package has color support, infinite zoom, and libraries as well as other powerful tools. Version 1.0.2 reviewed. Version 1.6 shipping. Requires Mac Plus or later; SE/30 or Mac II series with 2 MB of RAM recommended.

$795. Aperture Technologies, Inc., 84 W. Park Pl., Stamford, CT 06901. 800-342-9022 or 203-975-7587. (Apr '90) [MF#789]

**Ashlar Vellum** 🐭🐭🐭🐭
Ashlar Vellum is a powerful 2-D-CAD package for architectural and mechanical drafting. Allows comprehensive control of line tools, resizable geometric shapes, and text. Supports ANSI Y14.5 drawing standard and calculates 2-D properties such as area, perimeter, and moment of inertia. Supports PICT, ASCII, IGES, and DXF file formats. Exports EPS, DXF, and DXB files. Version 2.0 reviewed. Version 2.10 shipping. Requires Mac II series with 4 MB of RAM and a hard-disk drive. $1,995. Ashlar, Inc., 1290 Oakmead Pkwy., Ste. 218, Sunnyvale, CA 94086. 800-877-2745 or 408-746-1800. (Dec '91) ★ '89 Eddy [MF#790]

**Blueprint** 🐭🐭🐭
This affordable, easy-to-use 2-D-CAD program is particularly useful for architectural drafting. Has complete drawing tools and excellent control over colors and patterns. Dimensioning commands and DXF import/export capabilities are weak, but reliably exports EPS graphics. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later and a hard-disk drive. $295; plotter driver, $300. Graphsoft, Inc., 8370 Court Ave., Ste. 202, Ellicott City, MD 21043. 301-461-9488. (Sept '91) [MF#791]

**Claris CAD** 🐭🐭🐭🐭🐭
Claris CAD is excellent for entry-level or midlevel 2-D mechanical drafting. It's easy to master if you are proficient with MacDraw II. Now has a guide to location and construction of geometric features. There are special tools for architects. Well-implemented, ANSI-standard Geometric Dimensioning and Tolerancing system. Version 2.0 reviewed. Version 2.0v3 shipping. Requires 2 MB of RAM. $899; Claris Graphics Translator, $299. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (Mar '91) [MF#792]

**DesignCAD 2D/3D** 🐭🐭🐭
This capable 2-D-drafting program supports 3-D solid modeling and surface rendering. Has a few rough edges. Point-orientation method of drawing takes some getting used to. Overwhelming screens with long menus and huge palettes. Version 1.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 6.05 or later. $299. DesignCAD, Inc., One American Way, Pryor, OK 74361. 918-825-4848. (Mar '90) [MF#793]

**DynaPerspective** 🐭🐭🐭🐭½
Presentation was the strength in earlier versions of this 3-D-CAD program. Some necessary drafting capabilities have been added, its rendering tweaked, and its animations made faster and smaller. A powerful, versatile tool and a great value. Supports QuickTime and RenderMan. Version 2.01 reviewed. Version 2.31 shipping. Requires Mac II series with 2 MB of RAM and 8- or 24-bit-video card; hard-disk drive recommended. $995. Dynaware USA, Inc., 950 Tower Ln., Ste. 1150, Foster City, CA 94404. 800-445-3962 or 415-349-5700. (Dec '90) ★ '90 Eddy [MF#794]

**LANDesign** 🐭🐭🐭🐭½
This versatile land-surveying software simulates the way surveyors worked before they had Mac software to help them. All standard COGO (coordinate geometry) features are supported, and all objects can be named with character identifiers and labels. Version 1.11 reviewed. Version 1.14 shipping. Requires Mac Plus or later; hard-disk drive recommended. $595. Compuneering, Inc., 113 McCabe Crescent, Thornhill, Ontario L4J 2S6 Canada. 416-738-4601. (Sept '89) [MF#795]

**MiniCad+** 🐭🐭🐭🐭½
With a fast and logical interface, MiniCad+ has a Pascal-like macro language, an internal database, 2-D as well as 3-D graphics, a linked spreadsheet, and a low price. Has a MacDraw-like feel, but it may have the best 3-D capabilities among low-cost CAD programs. Version 3.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $795. Graphsoft, Inc., 8370 Court Ave., Ste. 202, Ellicott City, MD 21043. 301-461-9488. (Apr '91) ★ '90 Eddy [MF#796]

**PowerDraw** 🐭🐭🐭🐭
PowerDraw is an easy-to-use 2-D-CAD program with a host of features, including an interactive snap function that aids in geometry creation. Has complete drawing tools and excellent control over colors, true vector-oriented patterns, and Boolean operations such as joins and intersections and has full complement of dimensioning commands. Version 3.0 reviewed. Requires Mac Plus or later and a hard-disk drive. $795; PowerDraw Translator, $275. Engineered Software, P.O. Box 18344, Greensboro, NC 27419. 919-299-4843. (Sept '91) [MF#797]

**Vellum 3D** 🐭🐭🐭🐭
Vellum 3D is a highly-accurate 3-D-wireframe-CAD program with 2-D drafting capabilities. Doesn't offer hidden-line removal, and can't create shaded images as do surface and solid modelers. Well suited to mechanical design, drafting, engineering, and architectural tasks. Can create 2-D PICS animations of designed objects. Version 2.1 reviewed. Requires FPU-equipped Mac with 4 MB of RAM, System 6.03 or later, and a hard-disk drive. $2,495. Ashlar, Inc., 1290 Oakmead Pkwy., Ste. 218, Sunnyvale, CA 94086. 800-877-2745 or 408-746-1800. (June '92) [MF#798]

**VersaCad** 🐭🐭🐭🐭
VersaCad is a powerful CAD program that doesn't show any of its DOS roots. Excellent element manipulation and full plotter support. Version 1.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later. $1,995. Computervision (Personal CAD/CAM Business Unit), 100 Crosby Dr., Bedford, MA 01730. 800-488-7228 or 617-275-1800. (July '88) ★ '88 Eddy [MF#799]

## GRAPHICS & DESIGN/ CLIP ART

**Artbeats** 🐭🐭🐭🐭🐭
Artbeats is a series of superb high-tech EPS backgrounds. Six packages offer abstract, geometric, and natural images. Each package has 20 full-page backgrounds, saved as FreeHand and EPS files. Requires Mac Plus or later with 2 MB of RAM; hard-disk drive recommended. $99.95 each. Artbeats, P.O. Box 20083, San Bernardino, CA 92406. 800-444-9392 or 714-881-1200. (Nov '90) [MF#800]

**Canned Art: Clip Art for the Mac** 🐭🐭🐭🐭½
Canned Art: Clip Art for the Mac is a printed catalog of more than 15,000 images available on-disk. Most images are reduced, so several fit on a page. Excellent detailed index saves hunting through disks. $29.95; sample disk, $10. PeachPit Press, 2414 Sixth St., Berkeley, CA 94710. 800-283-9444 or 510-527-8555. (Sept '90) [MF#801]

**ClickArt** 🐭🐭🐭🐭
The ClickArt series consists of numerous MacPaint-format and EPS packages. Themes include business, sports, animals and nature, holidays, religion, and cartoons. MacPaint packages, $59.95 each; EPS packages, $129.95 each; Color Graphics for Presentations (PICT2 and EPS), $149.95. T/Maker Co., 1390 Villa St., Mountain View, CA 94041. 415-962-0195. (Nov '90) [MF#802]

**Clipables: the EPS Graphics Library** 🐭🐭🐭🐭
Clipables is an enormous collection of EPS artwork. The 1,100 images are well drawn and cover a wide range of topics. Favors variety over depth. $299.95. C.A.R., 7009 Kingsbury, St. Louis, MO 63130. 800-288-7585 or 314-721-6305. (Nov '90) [MF#803]

**Cliptures** 🐭🐭🐭🐭
Cliptures is a series of EPS clip-art packages comprising two business packages and one sports collection. Volume 2, Business Images 2, is the best collection. $129.95 per volume. Dream Maker Software, 925 W. Kenyon Ave., Ste. 16, Englewood, CO 80110. 800-876-5665 or 303-762-1001. (Aug '89) [MF#804]

**Collector's Editions I and II** 🐭🐭🐭🐭🐭
The Adobe Collector's Editions offer excellent selections of basic graphic elements for Illustrator users. Symbols, Borders & Letterforms contains a wide range of dingbats, borders, and two editable alphabets. Patterns and Textures provides more than 400 patterned fills, including standard patterns used in architecture, mapmaking, meteorology, and geology. Requires Illustrator. Symbols, Borders & Letterforms, $125; Patterns and Textures, $225. Adobe Systems, Inc., 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Nov '90) [MF#805]

**Digit-Art** 🐭🐭🐭
Digit-Art is an overwhelming collection of EPS clip art that's available on floppy disk or on CD-ROM. Comes with a well-designed catalog of images. More than 20 volumes are available. Version 1.0 reviewed. Version 5.0 shipping. CD-ROM, $799; single volume (disk), $99; two volumes (disk), $168; three volumes (disk), $199. Image Club Graphics, Inc., 1902 Eleventh St. S.E., Ste. 5, Calgary, Alberta T2G 3G2, Canada. 800-661-9410 or 403-262-8008. (Aug. '88) [MF#806]

**Images with Impact!** 🐭🐭🐭🐭🐭
Images with Impact! has several collections of superb, imaginative EPS clip art. The Business 1 package contains 175 images of people, equipment, and office situations. Graphics & Symbols 1 covers several topics and drawing styles. Accents & Borders 1 (winner of an Editors' Choice Award) contains 270 design elements, including borders, frames, ornaments, symbols, and mortises; registered users receive a bonus disk of color artwork. Business 1 package, $129.95; Graphics & Symbols 1, $99.95; Accents & Borders 1, $129.95; People 1, $189.95. 3G Graphics, Inc., 114 Second Ave. South, Ste. 104, Edmonds, WA 98020. 800-456-0234 or 206-774-3518. (Nov '90) ★ '90 Eddy [MF#807]

**MacGallery** 🐭🐭🐭🐭
MacGallery is a whimsical collection of MacPaint images that are ideal for children's publications, newsletters, and invitations. The 400 original illustrations include holidays, food, sports, borders, animals, plants, babies, teddy bears, dinosaurs, and cartoon arms and legs. Requires Mac Plus or later and any program that imports MacPaint-format files. $49.95. Dream Maker Software, 925 W. Kenyon Ave., Ste. 16, Englewood, CO 80110. 800-876-5665 or 303-762-1001. (Nov '90) [MF#808]

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FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

**Metro ImageBase Electronic Art 🐁🐁🐁½**
Metro ImageBase Electronic Art is a series of TIFF and EPS clip art from a pioneer of the clip-art industry. The traditional-looking images occupy lots of disk space. Requires Macintosh Plus or later and a hard-disk drive. $145 per volume. Metro ImageBase, Inc., 18623 Ventura Blvd., Ste. 210, Tarzana, CA 91356. 800-525-1552 or 818-881-1997. (Aug '89) [MF#809]

**Professional Photography Collection, Volume 1 🐁🐁🐁🐁🐁**
This CD-ROM contains 100 color TIFF images that come in three formats: 24-bit high-resolution color, 24-bit low-resolution color, and 8-bit black-and-white. Requires Mac II series or higher with color monitor and CD-ROM drive. $149 direct. discimagery, 18 E. 16th St., New York, NY 10003. 212-675-8500. (Sept '90) [MF#810]

**SwivelArt 🐁🐁🐁½**
SwivelArt includes read-only version of Swivel 3D Professional, serif and sans-serif 3-D fonts, a HyperCard stack for creating 3-D text, and more than a hundred 3-D maps, images of office equipment, and words and symbols commonly used in business presentations. Version 1.2.4 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive; color work requires Mac II series or higher with 2 MB of RAM. $129.95; Maps I and II, $250 each; Viewpoint Collections (Cars, Air & Sea, Anatomy), $250 each. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Aug '91) [MF#811]

**Totem Graphics 🐁🐁🐁½**
Totem Graphics has 13 volumes of PostScript images in 24-bit color. Color blends and fine details look superb even when printed in black-and-white. Requires Mac Plus or later and a hard-disk drive; requires Mac II series or higher for color images. $125 per category; CD-ROM with all categories, $995. Totem Graphics, 6200-F Capitol Blvd., Tumwater, WA 98501. 206-352-1851. (Oct '89) [MF#812]

**WetPaint 🐁🐁🐁🐁🐁**
This 20-volume series contains massive quantities of well-drawn MacPaint graphics. The best-seller is Classic Clip Art. Other titles include Publishing, Animal Kingdom, Special Occasions, Industrial Revolution, Island Life, and All the People. MacTut is a unique collection of ancient Egyptian artwork along with hieroglyphic fonts. Each volume includes ArtRoundup and Pattern Mover DAs. Each volume, $89.95. Dubl-Click Software, Inc., 9316 Deering Ave., Chatsworth, CA 91311. 800-266-9525 or 818-700-9525. (Sept '87) [MF#813]

## GRAPHICS & DESIGN/ DRAWING

**Canvas 🐁🐁🐁🐁🐁**
Canvas is a rich QuickDraw drawing/painting program that features full Bézier curves; the cutting and joining of polygons; skewing, perspective, and distortion capabilities; auto-dimensioning; area and perimeter calculation; autotracing of bit maps; and full-color support. Excellent complement to high-end PostScript programs. Creates and edits high-resolution bit maps to 2,540 dpi. Modular program design lets you install the features and tools you need. Supports QuickTime. Version 3.0 reviewed. Version 3.03 shipping. Requires Mac Plus or later and System 6.03 or later. $399. Deneba Software, 3305 N.W. 74th Ave., Miami, FL 33122. 800-622-6827 or 305-594-6965. (Jan '92) ★ '89, '91 Eddy [MF#814]

**Design Your Own Home: Architecture 🐁🐁🐁½**
This specialized drawing program produces simple housing floor plans and elevations. Its built-in parts libraries and numerous sample plans (they come from four separately available libraries) make the job easy. Version 1.0 reviewed. Version 1.6 shipping. Requires Mac Plus or later. $99.95; additional design libraries, $29.95 each. Abracadata Ltd., P.O. Box 2440, Eugene, OR 97402. 800-451-4871 or 503-342-3030. (May '90) [MF#815]

**DrawTools 🐁🐁🐁🐁**
DrawTools self-installs three DAs for use with MacDraw II. Sizer does exact scaling and dimensioning, calculates enclosed areas, and lets you resize a drawing. Adjacency brings together any two selected objects. Tools adds a handy menu that lets you clip or extend existing lines and build fillets. Can be awkward to use. Version 1.1 reviewed. Version 1.1.1 shipping. Requires Mac Plus or later and MacDraw II version 1.0v4 or 1.1v2. $99.95. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (July '90) [MF#816]

**FreeHand 🐁🐁🐁🐁½**
FreeHand is a professional color PostScript illustration package. Includes auto-trace, 100 levels of undo, freehand drawing, and powerful Blend command. Version 3.0 improves text manipulation but relies on dialog box for input. Fast screen redraw. New tool palettes (Layers, Colors, and Styles). Can edit in Preview mode. Allows Pantone, spot, or CMYK process-color controls. Displays, separates, and prints 32-bit-color TIFF images. Compatible with OPI. Version 3.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $595. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (July '91) [MF#817]

**Illustrator 🐁🐁🐁🐁½**
Illustrator is a professional color PostScript graphics program. Its extremely powerful, compact toolbox offers more drawing tools than did earlier versions. Its charting functions let you import detailed spreadsheet data as text, which is automatically converted into complex, easily customized charts (changes to imported numerical data also update the chart). Version 3.0 reviewed. Version 3.02 shipping. Requires Mac Plus or later. $595. Adobe Systems, Inc., 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Feb '91) ★ '88 Eddy [MF#818]

**MacDraft 🐁🐁🐁🐁½**
This object-oriented drawing program offers a rich set of features for a moderate price. Object rotation is precise, and it accesses the full spectrum of 16.7 million colors. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $399. idd (Innovative Data Design, Inc.), 2280-A Bates Ave., Concord, CA 94520. 510-680-6818. (Oct '90) [MF#819]

**MacDraw Pro 🐁🐁🐁🐁**
This updated version of Claris' popular illustration program offers an elegant, intuitive interface and a variety of tools. No longer a bare-bones drawing program, MacDraw Pro offers precise text manipulation, a range of file-translation and -import capabilities, support for 32-bit-color images (including gradient shading), and complex charting. Version 1.0v1 reviewed. Version 1.5 shipping. Requires Mac Plus or later with 4 MB of RAM, System 6.03 or later, and a hard-disk drive. $399; upgrade from MacDraw II, $99. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (Nov '91) ★ '85 Eddy [MF#820]

**Streamline 🐁🐁🐁½**
This dedicated PostScript autotrace package can quickly produce nearly print-ready traces with little tweaking. Continuous-tone photos aren't usually worth the trouble. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later and System 4.2 or later; 2 MB of RAM recommended. $195. Adobe Systems, Inc., 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Nov '89) [MF#821]

## GRAPHICS & DESIGN/ FONTS & TYPOGRAPHY

**ATM (Adobe Type Manager) 🐁🐁🐁🐁**
Adobe Type Manager is a must-have utility that creates smooth PostScript type fonts at any size on-screen and when printed on QuickDraw printers such as the ImageWriter II. Version 1.01 reviewed. Version 2.0 shipping. Requires Mac Plus or later and System 6.03 or later. $99. Adobe Systems, Inc., 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Feb '90) ★ '89 Eddy [MF#822]

**Fontina 🐁🐁🐁🐁½**
Fontina greatly enhances a font menu by showing all your fonts simultaneously, in multiple columns if needed. No scrolling is required. Correctly organizes font families. Can show fonts in any face and size. Trouble-free and performance is excellent. Knapsack feature lets you put favorite fonts at top of menu. Version 1.0 reviewed. Requires Mac Plus or later. $69.95. Eastgate Systems, P.O. Box 1307, Cambridge, MA 02238. 800-562-1638 or 617-924-9044. (Sept '90) [MF#823]

**FontMonger 🐁🐁🐁🐁**
FontMonger is a robust font-alteration tool that can convert fonts among PostScript Type 1, Type 3, and TrueType formats. Alterations include small caps; inferior, superior, and slanted characters; and fractions and other composite characters. Characters from different fonts can be combined into a single font, and EPS images can be imported as characters. Version 1.03 reviewed. Version 1.05 shipping. Requires System 6.03 or later and 2 MB of RAM; hard-disk drive recommended. $99.95. Ares Software, P.O. Box 4667, 561 Pilgrim Dr., Ste. D, Foster City, CA 94404. 415-578-9090. (Nov '91) [MF#824]

**Fontographer 🐁🐁🐁🐁**
Fontographer is an excellent PostScript-font editor/generator that includes an integrated screen-font editor, auto-tracing, a pen tool, and automatic hinting. Can create PostScript and TrueType fonts, but screen-font editor is strictly bare bones. Version 3.0 reviewed. Version 3.5 shipping. Requires Mac Plus or later and System 5.0 or later. $495. Altsys Corp., 269 W. Renner Rd., Richardson, TX 75080. 214-680-2060. (Jan '90) [MF#825]

**FontSizer II 🐁🐁🐁½**
FontSizer II creates high-quality screen fonts of any downloadable PostScript typeface in sizes up to 96 points. Excellent utility for producing large font sizes with true WYSIWYG. Version 1.7 reviewed. Version 2.0 shipping. Requires Mac Plus or later, System 5.1 or later, and a PostScript printer. $99.95. American Microelectronics, 1611 Headway Cir., Bldg. 3, Austin, TX 78754. 800-622-2177 or 512-339-0001. (Apr '89) [MF#826]

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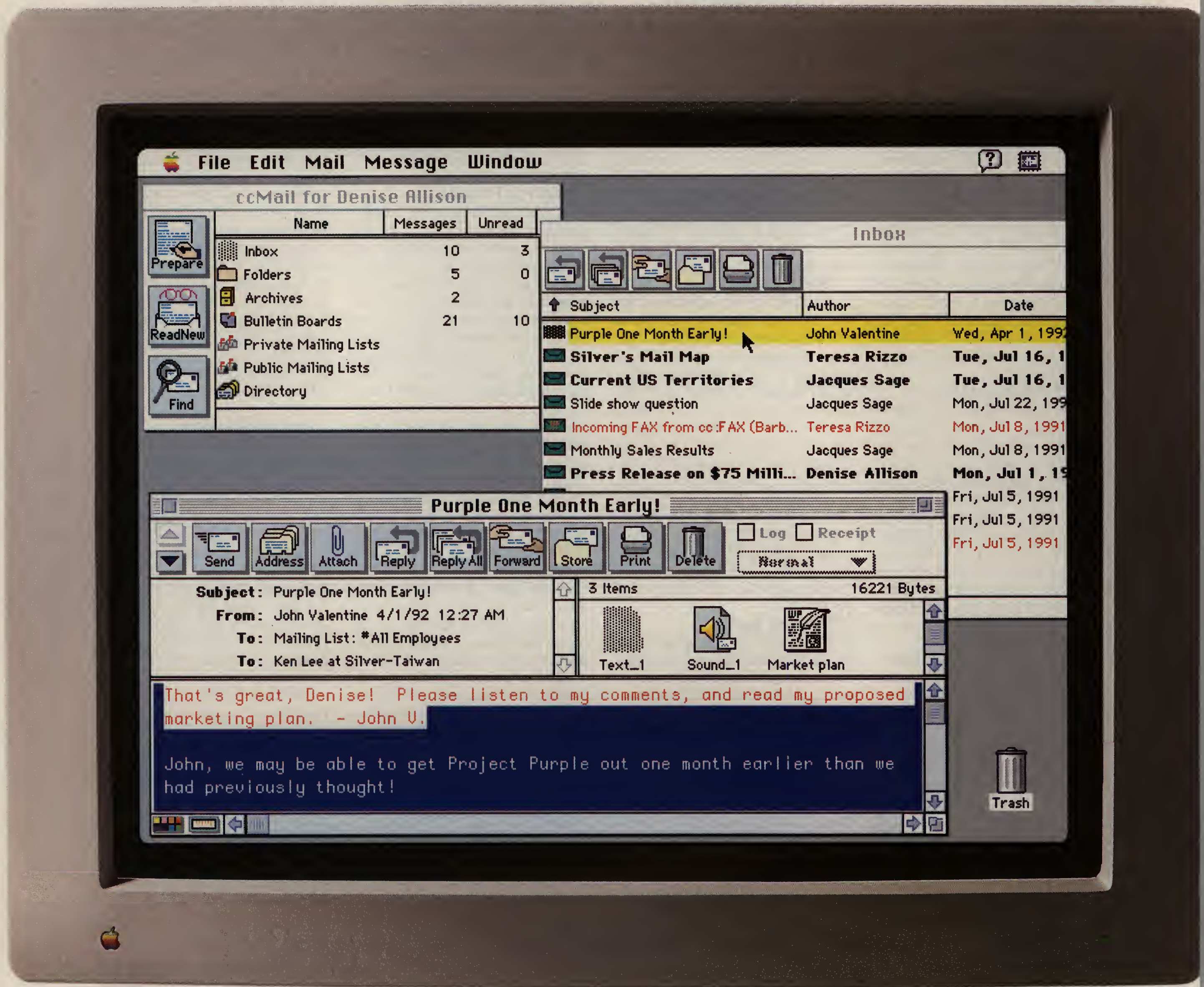
# You haven't had this m back and forth sin

## cc:Mail for Macintosh, Version 2.0 is out. Pass it on.

Whether you use the new cc:Mail™ to deliver praise or disapproval, sales reports or sandwich orders for that big luncheon, you'll find it as enjoyable and fun to use as the Macintosh® itself.

cc:Mail for Macintosh Version 2.0 looks, feels and performs like a Macintosh. So it's easy



| Name | Messages | Unread |
|---|---|---|
| Inbox | 10 | 3 |
| Folders | 5 | 0 |
| Archives | 2 | |
| Bulletin Boards | 21 | 10 |
| Private Mailing Lists | | |
| Public Mailing Lists | | |
| Directory | | |

| Subject | Author | Date |
|---|---|---|
| Purple One Month Early! | John Valentine | Wed, Apr 1, 199 |
| Silver's Mail Map | Teresa Rizzo | Tue, Jul 16, 1 |
| Current US Territories | Jacques Sage | Tue, Jul 16, 1 |
| Slide show question | Jacques Sage | Mon, Jul 22, 199 |
| Incoming FAX from cc:FAX (Barb... | Teresa Rizzo | Mon, Jul 8, 1991 |
| Monthly Sales Results | Jacques Sage | Mon, Jul 8, 1991 |
| Press Release on $75 Milli... | Denise Allison | Mon, Jul 1, 19 |
| | | Fri, Jul 5, 1991 |
| | | Fri, Jul 5, 1991 |
| | | Fri, Jul 5, 1991 |

Subject: Purple One Month Early!
From: John Valentine 4/1/92 12:27 AM
To: Mailing List: *All Employees
To: Ken Lee at Silver-Taiwan

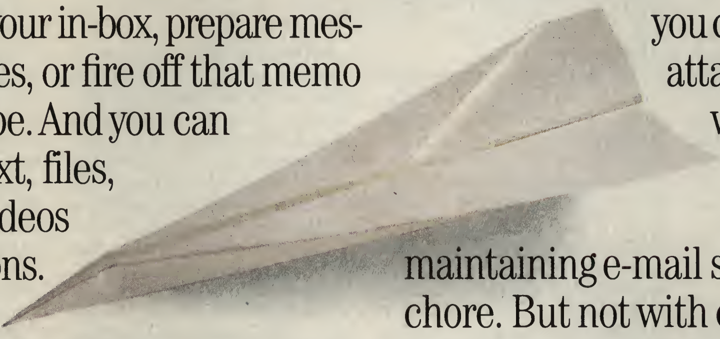
3 Items 16221 Bytes
Text_1 Sound_1 Market plan

That's great, Denise! Please listen to my comments, and read my proposed marketing plan. - John V.

John, we may be able to get Project Purple out one month earlier than we had previously thought!

# uch fun passing a note ce the third grade.

and, yes, fun to learn. Everything you need is right before your eyes. You just click on mail icons to check your in-box, prepare messages, store messages, or fire off that memo to the powers that be. And you can send and receive text, files, faxes, QuickTime videos and voice annotations. It also supports System 7 and all its capabilities, including Balloon Help,™ QuickTime, and AppleEvents.



Of course, all this simplicity doesn't mean cc:Mail for Macintosh isn't powerful. On the contrary, it lets you exchange messages with nearly every electronic mail system in the world. You can send messages effortlessly across all major platforms– Windows,™ DOS, and OS/2.® And if your company were to grow from 5 people to 500,000 people overnight, cc:Mail's scalable architecture could accommodate such growth.

Like to save time preparing messages? With cc:Mail, simply type in a person's name. There's no need to know their address. What's more, with one click, you can instantly open an attached file, even if it was created in a DOS application.*

Setting up and maintaining e-mail systems is often a chore. But not with cc:Mail. It offers an impressive set of administration tools, such as Automatic Directory Exchange, a product that automatically collects any changes in the directory and updates the entire network. cc:Mail also expedites the not-so-fun task of finding messages, thanks to a new Message Finder utility. And it lets you search for messages according to subject, text, address, date, size, priority or item.

So for a free demo disk of the cc:Mail for Macintosh Platform Pack, call **1-800-448-2500.**

cc:Mail. It makes passing a note to someone as much fun now as it was back then.

## Lotus cc:Mail for Macintosh

* Message recipient requires corresponding Macintosh application. ©1992 Lotus Development Corporation. All rights reserved. cc:Mail is a trademark of cc:Mail Inc., a wholly-owned subsidiary of Lotus Development Corporation. Macintosh is a registered trademark and Balloon Help is a trademark of Apple Computer, Inc. Windows is a trademark of Microsoft Corporation. OS/2 is a registered trademark of International Business Machines Corporation. The Apple logo is a registered trademark of Apple Computer, Inc. used under license.

**FontStudio** 🐁🐁🐁🐁½
FontStudio provides a fully integrated environment for typography on the Mac. Can store character parts in a library and has an excellent bit-map editor and a strong kerning-pairs interface. Supports Adobe Type I, Bitstream, Fontographer, LetraFont, and TrueType fonts. Can import Illustrator 1.1 artwork or use PICT and TIFF files as templates. Version 2.0 reviewed. Requires Mac Plus or later and a hard-disk drive. $595. Letraset USA, Inc., 40 Eisenhower Dr., Paramus, NJ 07653. 800-343-8973 or 201-845-6100. (May '92) ★ '91 Eddy [MF#827]

**KernEdit** 🐁🐁🐁🐁
KernEdit is an excellent kern-pair editor that lets you alter the kerning data for PostScript and TrueType fonts. Word View feature greatly simplifies kerning-table creation. Maximum resolution is 1/1,000 em. $149; additional kerning-table packages, $95 each. Agfa Division, Miles, Inc., 200 Ballardvale St., Wilmington, MA 01887. 800-227-2780 or 508-658-5600. (Apr '90) [MF#828]

**LetraStudio** 🐁🐁🐁🐁
This type-customization program can create headlines, logos, signs, and other display type. Lets you create unique distortion effects. Works with LetraFont typefaces or Type 1 fonts. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later and a hard-disk drive. $495; LetraFont typefaces, $75 each. Letraset USA, Inc., 40 Eisenhower Dr., Paramus, NJ 07653. 800-343-8973 or 201-845-6100. (May '89) ★ '88 Eddy [MF#829]

**Letterforms and Illusions** 🐁🐁🐁🐁
This set of fonts and figures leads you into exciting typographic explorations. Includes a limited version of MacPaint. Requires Mac Plus or later. $39.95. W. H. Freeman & Co., 41 Madison Ave., New York, NY 10010. 212-576-9400. (Mar '90) [MF#830]

**MacTography Type Sampler and Type Listing** 🐁🐁🐁🐁
The MacTography Type Sampler and Type Listing combination is a classic art director's type book that has samples of all PostScript laser fonts. The printed version of Type Sampler is the more valuable part of this package. Requires Mac Plus or later; Type Listing requires Microsoft Works. $75; one year of printed updates, $80. MacTography, 326-D N. Stonestreet Ave., Rockville, MD 20850. 301-424-3942. (Apr '90) [MF#831]

**Metamorphosis Professional** 🐁🐁🐁🐁
This utility can convert fonts among PostScript Type 1, Type 3, and TrueType formats on the Mac. Can access PostScript fonts located in printer ROM and save them on your hard disk. Also can export EPS and PICT outlines of font characters. Version 2.01 reviewed. Version 2.03 shipping. Requires Mac Plus or later and System 6.02 or later; hard-disk drive recommended. $149. Altsys Corp., 269 W. Renner Rd., Richardson, TX 75080. 214-680-2060. (Nov '91) [MF#832]

**SPECtacular** 🐁🐁🐁🐁
SPECtacular is a flexible type-sampler program that prints a variety of handsome specimen sheets. Shows typefaces in one- and two-page layouts. Incomplete documentation. Version 1.1.6 reviewed. Version 1.2 shipping. $79.95. Omega Systems, P.O. Box 7633, Chico, CA 95927. 916-894-6351. (Dec '91) [MF#833]

**theTypeBook** 🐁🐁🐁½
This simple type-sampler program includes four layouts: a specimen page, a key-caps table, a complete character set, and line samples. Version 2.2 reviewed. Version 2.36 shipping. Requires Mac Plus or later and System 6.04 or later. Free via on-line services such as ZiffNet/Mac; customized version, $45; or send postage-prepaid disk mailer and an 800K disk. Golden State Graphics (Jim Lewis), 2137 Candis Ave., Santa Ana, CA 92706. 714-542-5518. (Dec '91) [MF#834]

**TypeAlign** 🐁🐁🐁🐁½
This INIT/DA utility is helpful for DTP work if you use Adobe Type Manager. It lets you quickly place text along circular, angled, or arbitrary paths. Simple effects are easy to control, and the results are striking. Version 1.0.2 reviewed. Version 1.0.4 shipping. Requires Mac Plus or later, System 6.03 or later, Adobe Type Manager, and a hard-disk drive. $99. Adobe Systems, Inc., 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (May '90) ★ '89 Eddy [MF#835]

**TypeChart** 🐁🐁🐁🐁½
This type-sampler program includes five well-designed pages containing useful typographic information. Overview page shows sample headline, standard and composite characters, sample paragraphs, and examples of type-style variations. Headline page shows a font in sizes ranging from 16 to 127 points. Text page shows sample paragraphs in point sizes ranging from 5 to 14 points. Version 1.5 reviewed. $99.95. Octavo Productions, 3623 Sunnycrest Dr., Ste. 800, N. Vancouver, British Columbia V7R 3C5, Canada. 604-987-5270. (Dec '91) [MF#836]

**TypeStyler** 🐁🐁🐁🐁
This type-customization program lets you manipulate type to create display type. It supports 8-bit color and can output files as process-color separations. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later. $219.95. Brøderbund Software, Inc., P.O. Box 6125, 500 Redwood Blvd., Novato, CA 94948. 800-521-6263 or 415-382-4400. (May '90) ★ '90 Eddy [MF#837]

**World Class Fonts!** 🐁🐁🐁🐁🐁
World Class Fonts! are bit-mapped screen fonts that come with three useful utilities, all the Mac the Knife fonts, and much more. Eight separate volumes are available. $89.95 per volume. Dubl-Click Software, Inc., 9316 Deering Ave., Chatsworth, CA 91311. 800-266-9525 or 818-700-9525. (Oct '86) [MF#838]

## GRAPHICS & DESIGN/ MODELING & ANIMATION

**ADDmotion** 🐁🐁🐁🐁
ADDmotion is an extension to the HyperCard development environment that provides a powerful set of animation tools. You create animations using TimeLines (an editing window) and the Media Controller palette (resembling a VCR), with cels, actors, props, and object paths. Provides its own color-painting and sound tools. Version 1.0 reviewed. Version II shipping. $149. Motion Works, Inc., 1020 Mainland St., Vancouver, British Columbia V6B 2T4, Canada. 604-685-9975. (July '91) [MF#839]

**Animation Works** 🐁🐁🐁½
This suite of powerful, affordable software tools simplifies the creation of Mac-based animations. Can save animations as stand-alone sequences playable with Movie Player application (included). Macs equipped with RGB/NTSC conversion hardware and print-to-video software can output Animation Works movies to videotape. Version 1.0 reviewed. Requires 8-bit color display system. $199.95. Gold Disk, Inc., P.O. Box 789, Mississauga, Ontario L5M 2C2, Canada. 416-602-4000. (Nov '91) ★ '91 Eddy [MF#840]

**FilmMaker** 🐁🐁🐁🐁
This powerful animation tool includes five applications: Mark, Animate, Color, Sound, and Present. It is limited to the animation process, so the original graphic images that become sequential frames must be created in a painting or 3-D program and then imported as PICT, PICS, or EPS files. The program isn't optimized for precisely registered frame animation. Version 2.01 reviewed. Requires Mac II series or higher with 5 MB of RAM, 32-bit QuickDraw, and a hard-disk drive. $695. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Apr '91) ★ '90 Eddy [MF#841]

**Infini-D** 🐁🐁🐁🐁½
Infini-D packs modeling, rendering, and animation capabiliites into an outstanding 3-D-design package. Provides true object metamorphosis, free-form objects, ray tracing, SMPTE time-code animation, and multilayer surfaces. Easy-to-use, well-integrated interface allows multiple views and light sources, plus easy object editing. Surface maps can combine color, bump, transparency, reflection, and glow effects. Version 1.0 reviewed. Version 1.5 shipping. Requires color-capable Mac II with 4 MB of RAM, 32-bit QuickDraw, and a hard-disk drive. $895. Specular International, P.O. Box 888, Amherst, MA 01004. 413-549-7600. (Oct '91) [MF#842]

**MacRenderMan** 🐁🐁🐁🐁
MacRenderMan generates photo-realistic color images from files created in 3-D programs and saves in RIB (RenderMan Interface Bytestream) format. Complex and time-consuming to master, but provides superb high-resolution results. Version 1.1 reviewed. Requires Mac II series with 24-bit-color display, 5 MB of RAM, 32-bit QuickDraw, and a hard-disk drive. $695. Pixar, 1001 W. Cutting Blvd., Richmond, CA 94804. 510-236-4000. (Aug '91) [MF#843]

**ModelShop II** 🐁🐁🐁🐁½
ModelShop II is a powerful 3-D-modeling package. Extensive feature list includes support for unlimited drawing layers, Bézier-curve walls, text, precise measurements, shaded rendering, multiple light sources, and animation. Supports DXF and ClarisCAD file formats. Animation options include creation of stand-alone, self-running demos with sound. Version 1.2 reviewed. Version 1.5 shipping. Requires Mac II series or higher with 4 MB of RAM, 32-bit QuickDraw, and a hard-disk drive. $895. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Dec '91) ★ '91 Eddy [MF#844]

**Ray Dream Designer** 🐁🐁🐁½
This midrange 3-D-design program offers fast ray tracing of 3-D models. Awkward interface and creation of multiple files hinders productivity, but speedy ray-traced renderings show detailed reflective surfaces, shadows, and transparency effects. Good PICT and texture mapping. Useful Preview mode. Resulting 24-bit PICT files are close to photo-realistic. Image-rendering process can run in the background. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac II series with 4 MB of RAM, 32-bit QuickDraw, and a hard-disk drive; coprocessor chip recommended for 68020 Macs. $895. Ray Dream, Inc., 1804 N. Shoreline Blvd., Mountain View, CA 94043. 415-960-0765. (Sept '91) [MF#845]

**StrataVISION 3d** 🐁🐁🐁🐁½
StrataVISION 3d brings mainframe rendering power to the Mac.

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**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

It's a modeling and visualization tool that can create complex, photo-realistic 3-D images and animations. Rendering and screen-redraw times have been significantly reduced with latest version. Networked Macs using optional RenderPro application can dramatically cut rendering times. Supports Bézier splines for editable, smoothly curved objects. Many sophisticated texture and shape libraries are available. Supports QuickTime and PICS formats. Version 2.5 reviewed. Requires Macintosh II series or higher with FPU, 4 MB of RAM, and a high-capacity hard-disk drive. $995; RenderPro, $299 (group discounts available). Strata, Inc., 2 W. St. George Blvd., Ancestor Sq., Ste. 2100, St. George, UT 84770. 800-678-7282 or 801-628-5218. (July '92) ★ '91 Eddy [MF#846]

**Super 3D 🐁🐁🐁🐁🐁**
Super 3D is an update of an excellent 3-D object-oriented drawing program. Powerful, easy to use features. Three solid-rendering modes. Can export a scene as object-oriented 2-D snapshot in PICT or EPS format. Version 2.04 reviewed. Version 2.5 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive; requires Mac II series or higher for color work. $495. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Mar '90) [MF#847]

**Swivel 3D Professional 🐁🐁🐁½**
Swivel 3D Professional is a color-modeling program that forms shaded solids speedily. Objects can be manipulated as jointed and sliding mechanisms without accidental dismantling. Can tween-animate objects or fly through scenes, saving frames for playback. Missing some professional tools such as Bézier-curve editing and adequate links to RIB format. Version 1.58 reviewed. Version 2.0 and SwivelMan shipping. Requires Macintosh II series or higher with 5 MB of RAM, System 6.05 or later, a hard-disk drive, and 8- or 24-bit display system. $695. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Aug '91) ★ '89 Eddy [MF#848]

**Virtus WalkThrough 🐁🐁🐁🐁½**
This powerful modeling and visualization package makes virtual-reality concepts available to ordinary desktop Macs. Provides two views of an imaginary building or other object. Version 1.03 reviewed. Version 1.11 shipping. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive; color requires Mac II series or higher and 4 MB of RAM. $495. Virtus Corp., 117 Edinburgh S., Ste. 204, Cary, NC 27511. 919-467-9700. (July '91) ★ '90 Eddy [MF#849]

## GRAPHICS & DESIGN/ PAGE LAYOUT

**CopyFlow 🐁🐁🐁🐁**
CopyFlow is a QuarkXPress XTension that allows batch importing or exporting of text and graphic elements. CopyFlow automates placement after you've completed your revisions. Version 2.0 reviewed. Version 2.31 shipping. Requires QuarkXPress. $395. North Atlantic Publishing Systems, 9 Acton Rd., Ste. 13, Chelmsford, MA 01824. 508-250-8080. (Sept '90) [MF#850]

**DataShaper 🐁🐁🐁🐁**
This PageMaker text-import filter converts tab- or comma-delimited data files into precisely formatted text when they're placed into a page layout. Requires careful planning and time-consuming programming of special code, but saves considerable time compared with preparing imported text manually. Version 1.2 reviewed. Requires PageMaker 4.0 or later. $179.95. ElseWare Corp., 3201 Fremont Ave. N., Seattle, WA 98103. 206-632-3300. (Oct '91) [MF#851]

**DesignStudio 🐁🐁🐁½**
DesignStudio is based on Ready,Set,Go! but is more than a beefed-up version of that program — it has new layout-management features, and its handling of text, graphics, and color separations is good. It duplicates many of RSG's drawbacks, however. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac SE/30 with a hard-disk drive, or Mac II series. $795; upgrade from Ready,Set,Go!, $250. Manhattan Graphics Corp., 250 E. Hartsdale Ave., Ste. 23, Hartsdale, NY 10530. 800-572-6533 or 914-725-2048. (June '90) [MF#852]

**Fast Forms 🐁🐁🐁🐁½**
Fast Forms is a modest, inexpensive forms-design program intended primarily for low-end users. Can import and export comma- and tab-delimited files. Can create fields to match scanned images of preexisting forms. The FastForms Filler feature lets you fill out forms without needing the original program. Version 2.0 reviewed. Requires Mac Plus or later and System 6.03 or later. $179.95; upgrade, $49.95. Power Up Software Corp., 2929 Campus Dr., San Mateo, CA 94403. 800-851-2917 or 415-345-5900. (Sept '90) [MF#853]

**FlexForm Business Templates 🐁🐁🐁🐁**
These two volumes of prepackaged business forms include SmartForm Assistant. Volume I contains stockkeeping, production, sales, billing, and collection forms. Volume II has purchasing, receiving, accounting, disbursing, and personnel business forms. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later and a hard-disk drive. $89.95 per volume. Formula, Inc., 1160 Industrial Ave., Ste. J, Petaluma, CA 94952. 707-763-9944. (Jan '90) [MF#854]

**FrameMaker 🐁🐁🐁🐁½**
FrameMaker is a powerhouse program for long-document and technical publishing. Provides sophisticated control over paragraph formats and cross-referencing. Its spelling checker works well and quickly. Table formatting is substantially improved over previous version. Imports standard Mac graphics as well as EPSI (UNIX), DOS, EPS, and Sun raster files. Supports DCS (Desktop Color Separation) graphics, although somewhat clumsily. Version 3.0 reviewed. Requires Mac II series or higher with 4 MB of RAM, System 6.03 or later, and a hard-disk drive. $795. Frame Technology, 1010 Rincon Cir., San Jose, CA 95131. 408-433-3311. (Feb '92) ★ '91 Eddy [MF#855]

**Informed Designer 🐁🐁🐁🐁½**
Informed Designer is a complex, comprehensive forms-design program intended primarily for high-end users. Can import or export almost anything. More than 150 mathematical, financial, and statistical functions. Version 1.01 reviewed. Version 1.2 shipping. Requires Mac SE or later, System 6.05 or later, and a hard-disk drive. $295; Informed Manager, $195. Shana Corp., Advanced Technology Ctr., 9650 20th Ave., Ste. 105, Edmonton, Alberta T6N 1G1 Canada. 403-463-3330. (Sept '90) [MF#856]

**Interleaf Publisher 🐁🐁🐁½**
This speedy multiuser layout system produces large, complicated documents. Has improved user interface but suffers from poor font management. Version 3.5 reviewed. Version 3.6.2 shipping. Requires Mac II series with 5 MB of RAM and a hard-disk drive. $995. Interleaf, Inc., Prospect Pl., 9 Hillside Ave., Waltham, MA 02154. 800-456-5323 or 617-290-0710. (Apr '89) [MF#857]

**Layouts 🐁🐁🐁🐁½**
Layouts is a set of templates for QuarkXPress, DesignStudio, PageMaker, or Ready,Set,Go!. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later. $129.95 for each version. Postcraft International, Inc., 27811 Ave. Hopkins, Ste. 6, Valencia, CA 91355. 805-257-1797. (May '90) [MF#858]

**Multi-Ad Creator 🐁🐁🐁🐁½**
This powerful tool lets you create high-quality single-page ads for PostScript output. Every kind of graphic file and most word-processor files can be imported. If you create ads and don't need an all-purpose page-layout program, get Multi-Ad Creator. Version 2.1 reviewed. Version 3.0 shipping. Requires Mac Plus or later with 4 MB of RAM and a hard-disk drive. $895. Multi-Ad Services, Inc., 1720 W. Detweiller Dr., Peoria, IL 61615. 800-447-1950 or 309-692-1530. (June '90) [MF#859]

**PageMaker 🐁🐁🐁🐁**
This powerful and popular page-layout application is easy to learn and packed with features. Versatile and well-adapted to efficient long-document processing. Includes Aldus PrePrint application for generating precise, high-resolution color separations. Features interruptible screen redraw, a real time-saver. New Control palette offers exact positioning and dimensioning of selected objects. Supports Aldus Additions, which extend feature set and allow custom scripting. Version 4.2 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $795. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (July '92) ★ '85, '87, '88 Eddy [MF#860]

**PDQ! (Page Designs Quick!) 🐁🐁🐁🐁½**
PDQ! (Page Designs Quick!) and PDQ! 5 (Page Designs Quick! 5) are PageMaker templates designed for newsletter and newspaper publishing. The quality of the templates is excellent, but they lack art. You can modify all layouts from within PageMaker. Version 1.0 reviewed. Requires PageMaker 3.0 or later. PDQ!, $89.95 direct; PDQ! 5, $159.95. PAR Publishing, 6355 Topanga Canyon Blvd., Ste. 307, Woodland Hills, CA 91367. 818-340-8165. (Aug '90) [MF#861]

**Personal Press 🐁🐁🐁🐁½**
This budget page-layout program has good features, including basic word processing, style-sheet support, good TIFF-halftone controls, and spot-color cutouts. Can have only one document open at a time. AutoCreate feature simplifies design and production of templates. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $199. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (July '91) [MF#862]

**Publish It! 🐁🐁🐁🐁**
Publish It! is a page-layout package designed for users with basic DTP requirements. Includes word-processing and simple drawing and painting tools. Version 1.1 reviewed. Version 2.0 shipping. Requires Mac Plus or later and System 6.03 or later; hard-disk drive recommended. $149.95. Timeworks, Inc., 625 Academy Dr., Northbrook, IL 60062. 800-535-9497 or 708-559-1300. (Dec '89) [MF#863]

**Publish It! Easy 🐁🐁🐁🐁½**
This budget DTP application has many innovative features, including a slide-show option and built-in File-It! database module. Menus

**MICE RATINGS** .......🐁 ........🐁½ ...........🐁🐁 .............🐁🐁½ ...............🐁🐁🐁 .............🐁🐁🐁½ ............🐁🐁🐁🐁 ...........🐁🐁🐁🐁½ .............🐁🐁🐁🐁🐁

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and dialog boxes are uncrowded and simple to use. Easy importing of text and graphics. Can't do process-color separations. Has small disk and memory requirements, vertical text justification, and five levels of Undo. Lacks real style sheets. Version 2.18 reviewed. Requires Mac Plus or later and System 6.03 or later. $249.95. Timeworks, Inc., 625 Academy Dr., Northbrook, IL 60062. 800-535-9497 or 708-559-1300. (June '92) ★ '90 Eddy [MF#864]

**QuarkXPress 🐭🐭🐭🐭½**
QuarkXPress is a high-end, professional page-layout program that now has a greatly simplified interface. Workspace surrounding the page can serve as pasteboard storage. You can also rotate any object or group in increments as fine as .001 degree. Several documents can be open simultaneously. Features excellent, precise typographic and color controls well suited to high-end prepress work. Can color-separate CMYK TIFF and Scitex CT files, but not RGB, TIFF, or PICT files. Version 3.1 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $895. Quark, Inc., 300 S. Jackson St., Denver, CO 80209. 800-788-7835 or 303-934-2211. (July '92) ★ '89 Eddy [MF# 865]

**Ready,Set,Go! 🐭🐭🐭**
This low-budget DTP program has an elegant interface, good style sheets, typographical controls, gray-scale halftone control, and spot color. Easy to use. Limited graphic tools. Version 4.5a reviewed. Version 5.0 shipping. Requires Mac Plus or later and a hard-disk drive. $295. Manhattan Graphics Corp., 250 E. Hartsdale Ave., Ste. 23, Hartsdale, NY 10530. 800-572-6533 or 914-725-2048. (July '91) ★ '86 Eddy [MF# 866]

**SmartForm Designer 🐭🐭🐭🐭**
SmartForm Designer is a full-featured forms-design manager. Includes SmartForm Assistant for filling out forms when design is complete. Version 1.1 reviewed. Version 1.1.v1 shipping. Requires Mac Plus or later and a hard-disk drive. $399. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (Jan '90) [MF#867]

### GRAPHICS & DESIGN/ PAINTING & IMAGE EDITING

**Amazing Paint 🐭🐭🐭🐭**
A sense of fun pervades this inexpensive black-and-white painting program. Extensive special-effects feature list and many clever tools make the program useful for graphics pros and doodlers alike. Version 1.01 reviewed. Version 1.03 shipping. Requires Mac Plus or later and System 6.04 or later; hard-disk drive recommended. $99.95. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (Oct '91) [MF#869]

**Color It! 🐭🐭🐭½**
This affordable 24-bit paint program offers surprising strength in image processing. Delivers basic color-image-enhancement features for users who don't need the high-end power of packages such as ColorStudio or Photoshop. Supports PICT, TIFF/Mac or TIFF/PC, PostScript, Paint, Photoshop, and CompuServe GIF formats. Weak manual. Version 1.0 reviewed. Requires Mac II series or higher with 2 MB of RAM, System 6.05 or later, and 32-bit QuickDraw; 24-bit-color display sytem recommended. $119.95. MicroFrontier, Inc., 3401 101st St., Ste. E, Des Moines, IA 50322. 800-388-8109 or 515-270-8109. (Apr '92) [MF#870]

**Color MacCheese 🐭🐭🐭½**
Color MacCheese is an inexpensive, full-color painting program that is designed for artistic fun, not as a professional tool. Two noncustomizable palettes are provided, resolution is limited to 72 dpi, and there are no rulers. Version 1.05 reviewed. $99. Delta Tao Software, Inc., 760 Harvard Ave., Sunnyvale, CA 94087. 800-827-9316 or 408-730-9336. (Mar '91) [MF#871]

**ColorStudio 🐭🐭🐭🐭½**
Although decidedly more complex and difficult to learn than Photoshop, ColorStudio offers an unbeatable set of tools for professional-quality color manipulation and high-end output. You can control color calibration, film separations, amazing special effects, and a wide range of image-editing tools. Version 1.11 reviewed. Version 1.5 shipping. Requires 24-bit color display system. $795. Fractal Design Corp., 335 Spreckels Dr., Ste. F, Aptos, CA 95003. 408-688-5300. (May '91) ★ '90 Eddy [MF#872]

**Digital Darkroom 🐭🐭🐭🐭🐭**
If you don't need the color capabilities of more-expensive photo-manipulation programs, choose Digital Darkroom. Strictly for black-and-white or high-resolution gray-scale images, but images can be colorized for use in other programs. Version 2.0 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive and requires gray-scale or color display system. $395. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (June '91) ★ '88 Eddy [MF#873]

**Easy Color Paint 🐭🐭🐭🐭**
Easy Color Paint is a low-cost 8-bit (256-color) painting program. Supports color QuickDraw printers and WACOM pressure-sensitive digitizing tablets. Good performance. Poor manual. Version 2.003 reviewed. Requires color-capable Mac. $89. MECC, 6160 Summit Dr. N., Minneapolis, MN 55430. 800-685-6322 or 612-569-1500. (Nov '91) [MF#874]

**Enhance 🐭🐭🐭🐭½**
Enhance is an affordable, 8-bit, gray-scale image processor. Has many sophisticated graphics tools. Includes painting, text, and shape-drawing tools. Can open TIFF, PICT, MacPaint, or EPS files. Has its own virtual-memory system for dealing with very large images. Tool palette is easily customized. Provides filters, masks, and anti-aliasing. Version 2.0 reviewed. Requires 68020 CPU or higher with 2 MB of RAM, System 6.03 or later, 32-bit QuickDraw, and a hard-disk drive. $375. MicroFrontier, Inc., 3401 101st St., Ste. E, Des Moines, IA 50322. 800-388-8109 or 515-270-8109. (May '92) [MF#875]

**Gallery Effects 🐭🐭🐭🐭🐭**
Gallery Effects consists of a wide variety of graphics filters that should be used with Digital Darkroom, SuperPaint, or Photoshop. Filters transform scanned images by simulating brush strokes, watercolors, charcoal, spatter paint, fresco, poster edges, rough-surface craquelure, reflective chrome, and high-contrast graphic pen. Version 1.0 Classic Art reviewed. Requires 24-bit display system; image size is limited by available RAM (except in Photoshop or in Macs using virtual memory). $199. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Apr '92) ★ '91 Eddy [MF#868]

**ImageStudio 🐭🐭🐭🐭½**
ImageStudio puts a complete black-and-white or gray-scale photo-retouching lab on the Mac desktop. Editable brushes let you modify digitized images in 256 gray levels. Version 1.0 reviewed. Version 1.7 shipping. Requires Mac Plus or later and a hard-disk drive; gray-scale work requires 8-bit-video card and a compatible monitor. $250. Fractal Design Corp., 335 Spreckels Dr., Ste. F, Aptos, CA 95003. 408-688-5300. (June '88) [MF#876]

**Kid Pix 🐭🐭🐭🐭🐭**
Kid Pix is a simple color painting program with entertaining sounds and attention-grabbing, animated special effects. Wacky Brushes includes drippy paint and soda-pop bubbles. The Electric Mixer thrashes drawings, the Splash tool drops big blobs of paint, and Rubber Stamps gives you a choice of 80 images (such as frogs, birds, and ice-cream cones) and drops your choice wherever you click the cursor. Version 1.0 reviewed. Version 1.2 shipping. Requires color-capable Mac; sound recording requires System 6.07 or later and a microphone. $59.95. Brøderbund Software, Inc., P.O. Box 6125, 500 Redwood Blvd., Novato, CA 94948. 800-521-6263 or 415-382-4400. (Aug '91) ★ '91 Eddy [MF#877]

**MacPaint 🐭🐭🐭½**
MacPaint now supports multiple windows, design templates, and a magic eraser for corrections. A good starter package for kids, and a decent painting program if you only need basic doodling capability. Version 2.0 reviewed. Requires Mac Plus or later; hard-disk drive recommended. $125. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (July '88) ★ '85, '87 Eddy [MF#878]

**Painter 🐭🐭🐭🐭🐭**
This affordable color-painting program imitates the behavior of natural media such as chalk, crayons, felt-tipped pens, airbrushes, and watercolors. Easy-to-use interface needs plenty of screen area. Comprehensive features allow extremely sophisticated control over brush marks, transparency, and simulated textures of canvas or paper surfaces. Supports Wacom pressure-sensitive digitizing stylus and tablet. Version 1.0 reviewed. Version 1.2 shipping. Requires 68020 CPU or higher with 2.5 MB of RAM, System 6.05 or later, a color display system, and a hard-disk drive; digitizing tablet recommended. $349. Fractal Design Corp., 335 Spreckels Dr., Ste. F, Aptos, CA 95003. 408-688-5300. (Feb '92) ★ '91 Eddy [MF#879]

**Photoshop 🐭🐭🐭🐭🐭**
This professional, 32-bit photo-retouching program combines powerful image-editing capabilities with an unintimidating interface. Fast, reliable, and easy to use. Flexible file-conversion options — can import and export images to and from popular Mac and DOS graphics file formats. Allows on-screen CMYK editing, precise control of color separations, UCR (undercolor removal), and GCR (gray-component replacement). Can open and rasterize EPS files for use in continuous-tone images. Supports PostScript Level 2. Version 2.0 reviewed. Version 2.0.1 shipping. Requires Mac II series or higher with 4 MB of RAM, a hard-disk drive (minimum of 150 MB), and a color monitor. $895. Adobe Systems, Inc., 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Sept '91) ★ '90, '91 Eddy [MF#880]

**PixelPaint Professional 🐭🐭🐭🐭**
PixelPaint Pro has a significantly improved interface that allows multiple open documents and floating palettes. Offers extensive support for CMYK color separations and provides an independent PostScript text layer. Includes several color-blending and -manipulating tools as well as anti-aliasing capabilities. Version 2.0

MICE RATINGS ....... 🐭 ........ 🐭½ ........... 🐭🐭 ............. 🐭🐭½ .............. 🐭🐭🐭 ............ 🐭🐭🐭½ ........... 🐭🐭🐭🐭 .......... 🐭🐭🐭🐭½ ............. 🐭🐭🐭🐭🐭

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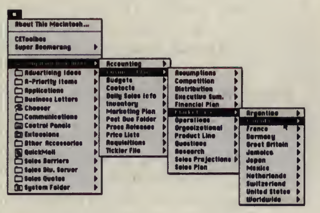
# MacWeek & MacUser's 1991 Utility Product of the Year!

What did it take to get the editors at *MacWeek* and *MacUser* to agree on the best Macintosh utility product?

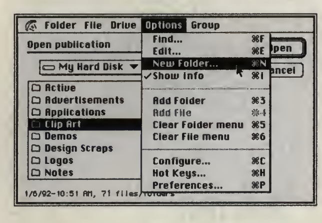
Unprecedented performance, compatibility, and value. In this case, a collection of 10 utilities that does for System 7 what products like SUM and Norton do for hard disks — only more so. As *MacUser* put it, "Now Utilities will make your Macintosh faster, easier, and more fun to use." For example:

- ***StartUp Manager***™ provides complete extension management
- ***Super Boomerang***™ finds files and folders instantly
- ***WYSIWYG Menus***™ groups fonts in their own typefaces
- ***NowMenus***™ makes the Apple Menu hierarchical
- ***AlarmsClock***™ displays the time & reminders in the menubar
- ***NowSave***™ automatically saves files to prevent data loss
- ***Screen Locker***™ keeps confidential information confidential
- ***MultiMaster***™ launches applications and files
- ***Profiler***™ analyzes system configurations
- ***DeskPicture***™ puts color and B&W pictures on the Desktop

In fact, every utility in the collection is the best of its kind. Every utility in the collection is also designed, tested, and guaranteed to work together — and with anything you may have...even System 6. No wonder *MacUser* gave it a perfect five mouse rating and called it, "a must-have for experienced users and novices alike."



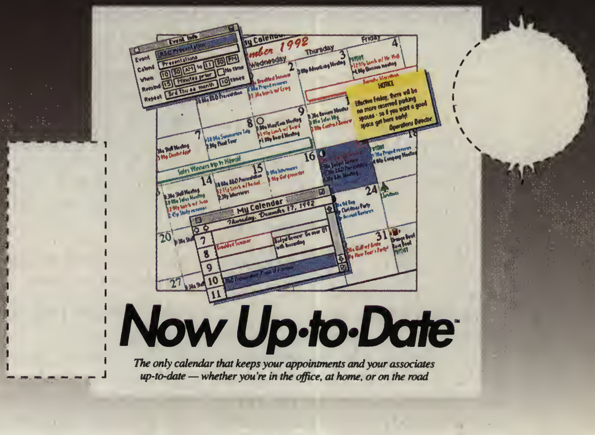
*NowMenus saves you a lot of mousing around by creating submenus up to 5 levels deep for anything you put in your Apple Menu items folder — even aliases and other folders. It also pops up the menubar wherever you click your mouse*



1/6/92–10:51 AM, 71 files/folders

*Super Boomerang lists your most frequently used files and folders in all Open and Save dialog boxes and in the Apple menu. It also lets you find files by name or content...even if they've been compressed (a file name search on a 100MB hard disk can take only 3 seconds — without requiring an index)*

# MacWeek & MacUser's 1992 Network Product of the Year?


December 1992
My Calendar
Now Up·to·Date
The only calendar that keeps your appointments and your associates up-to-date — whether you're in the office, at home, or on the road

What will it take to get the editors at *MacWeek* and *MacUser* to agree on the best Macintosh network product?

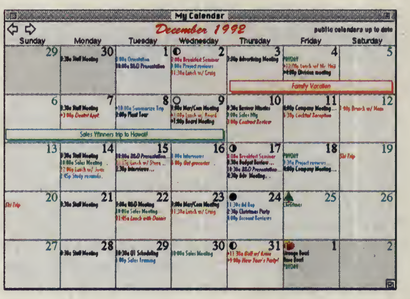
Perhaps Now Up-to-Date™: the only Macintosh application that keeps your appointments and your associates up-to-date — whether you're in the office, at home, or on the road.

***Organize Your Appointments*** Now Up-to-Date can schedule a meeting to occur at 9:00 AM on the first Tuesday of every month and have it automatically appear on your associates' calendars. Scheduled events can be private, shared, or restricted (i.e., only available to people with the correct password.)

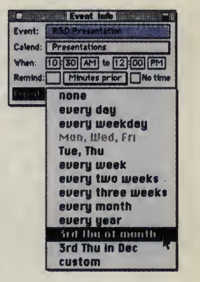
***Remember Your Meetings*** Now Up-to-Date keeps track of all of your meetings and appointments, so you don't have to. It can also provide advance warning of upcoming events to ensure everyone shows up on time.

***Mobilize Your Office*** Now Up-to-Date's versatile printing options include support for all major appointment books, so you can take your calendar on the road. If you own a PowerBook you'll appreciate the fact that Now Up-to-Date doesn't require you to be connected to a network to see your schedule. For that matter, you don't even need to own a network: Now Up-to-Date makes a great single user product, too.

Isn't it time you got up-to-date?



*Now Up-to-Date's unique 'Public Calendars' coordinate your schedule with your associates' automatically, so your left hand knows what your right is doing*



Event: R&D Presentation
Calend: Presentations
When: 10:30 AM to 12:00 PM
Remind: Minutes prior ☐ No time

*Now Up-to-Date can repeat events (and their reminders) with whatever frequency you may desire*

With all this attention from the press it's not surprising that Now Utilities is already one of the best-selling products on the Macintosh. Now Up-to-Date looks to be just as popular. Call Now at **1-800-237-3611** to learn more about both of these great products, and how they can help you get more out of your Macintosh.

**Now Software**

*Now Software, Inc. 319 S.W. Washington Street, 11th Floor Portland, Oregon 97204 Telephone: (503) 274-2800 Toll-Free: (800) 237-3611 Facsimile: (503) 274-0670*

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reviewed. Version 2.01 shipping. Requires Mac with 4 MB of RAM, System 6.05 or later, and a hard-disk drive; 24-bit-color display system recommended. $799. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (Oct '91) [MF#881]

**Studio/1 🐁🐁🐁🐁½**
Studio/1 is an excellent black-and-white painting program that also has impressive flip-frame-animation capabilities. It has an uncluttered animation surface, painting tools with 300-dpi capabilities, and a HyperCard playback utility (XCMD). Version 1.0 reviewed. Requires Mac Plus or later; hard-disk drive recommended. $79. Electronic Arts, 1450 Fashion Island Blvd., San Mateo, CA 94404. 800-245-4525 or 415-571-7171. (Sept '89) [MF#882]

**Studio/32 🐁🐁🐁🐁½**
Many graphic artists think that this is the ideal color-painting program. It has many special tools and effects, including airbrush, gradients and blends, smudge, and anti-aliasing. A PostScript text layer keeps letters fully editable. Its unusual effects include spherization; perspective; free rotation; resizing/stretching; transparency; and the "magic wand," which selects only certain pixels within an adjustable color range. Version 1.0 reviewed. Version 1.2 shipping. Requires 24-bit-color display system, 5 MB of RAM, and a hard-disk drive. $695. Electronic Arts, 1450 Fashion Island Blvd., San Mateo, CA 94404. 800-245-4525 or 415-571-7171. (Mar '91) ★ '90 Eddy [MF#883]

**Studio/8 🐁🐁🐁🐁🐁**
This professional 8-bit painting application has a superior tool set, an elegant interface, and excellent performance and speed. Version 1.1 reviewed. Version 2.0 shipping. Requires Mac II or LC and higher with 2 MB of RAM and a hard-disk drive. $295. Electronic Arts, 1450 Fashion Island Blvd., San Mateo, CA 94404. 800-245-4525 or 415-571-7171. (Jan '89) ★ '88 Eddy [MF#884]

**SuperPaint 🐁🐁🐁🐁**
SuperPaint is a combination painting/drawing program that includes features such as plug-in tools, auto-trace, Bézier curves, support for resolutions exceeding 300 dpi, and 24-bit-color support. Has sophisticated color controls, texture fills, gradients, and import capabilities. Can save custom palettes and lets you define colors using RGB, HSB, or CMYK models. Has impressive collection of special-effects tools. Supports paint, EPS, TIFF, PICT, startup-screen, and SuperPaint 1.0 formats. Version 3.0 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.05 or later, and a hard-disk drive; 24-bit color display system and 4 MB of RAM recommended. $199; upgrade, $65. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Apr '92) ★ '87 Eddy [MF#885]

**UltraPaint 🐁🐁🐁½**
UltraPaint is an 8-bit-color graphics program that's suited for users new to computer graphics and color, but experienced artists may also find it useful. It's a solid painting package with basic tools plus a variety of specialized tools and modes. Version 1.0 reviewed. Version 1.05 shipping. Requires Mac II series or LC with color monitor. $199. Deneba Software, 3305 N.W. 74th Ave., Miami, FL 33122. 800-622-6827 or 305-594-6965. (Sept '90) [MF#886]

### GRAPHICS & DESIGN/ PRESENTATIONS

**Authorware Professional 🐁🐁🐁🐁🐁**
A supremely engineered tool for building stand-alone interactive training applications without programming, Authorware Professional lets you blend sound, video, and animation. By stringing together icons that represent various program components, you create logical, editable sequences. Can use many existing XCMDs and XFCNs written for HyperCard and MacroMind Director. Generates detailed printed reports. Supports many videodisc controllers. Version 1.6 reviewed. Version 1.7 shipping. Requires Mac Plus or later; Mac II with 4 MB of RAM recommended for color work. $8,000; for educational users, $995. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Aug '91) ★ '90 Eddy [MF#887]

**CA-Cricket Presents 🐁🐁🐁🐁**
This presentation tool has a strong graphics emphasis. Good master template. Lacks text-import capability. Version 1.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $199. Computer Associates International, Inc., One Computer Associates Plaza, Islandia, NY 11788. 800-531-5236 or 516-342-5224. (Dec '88) [MF#888]

**Cinemation 🐁🐁🐁🐁**
Cinemation is an easy-to-use frame-based-animation tool. Perfect if you need to build on-screen presentations for use in business and education. Not as powerful and feature-rich as programs such as MacroMind Director. Imports and plays existing Persuasion and PowerPoint files. Has good painting tools and useful controls for sound and music. Imports PICT, PICS, and QuickTime files. Has CinePlayer playback utility plus many sample animations and XCMDs for use in HyperCard. Version 1.0 reviewed. Requires Mac II series or higher with 4 MB of RAM, a color display system, and a hard-disk drive. $495. Vividus Corp., 651 Kendall Ave., Palo Alto, CA 94306. 415-494-2111. (July '92) [MF#889]

**MacroMind Director 🐁🐁🐁🐁½**
MacroMind Director is unequaled for its combination of interactivity with animated playback of color graphics and sound. By writing routines in Director's scripting language, you can develop interactive animations and also control peripheral devices such as CD-ROM drives, VCRs, and videodisc players. Good for users familiar with HyperTalk scripting or similar programming. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.05 or later, and a hard-disk drive. $995. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Mar '91) ★ '89 Eddy [MF#890]

**MediaMaker 🐁🐁🐁½**
MediaMaker lets you compile multimedia presentations by controlling and editing output from VCRs, videodisc players, camcorders, and CD-ROM drives. Clean, powerful interface. Also provides simultaneous control of Mac-based animations, graphics, and sound. Can assemble presentation elements and sound on to videotape. Compatible with Sony's LANC communication protocol for controlling video peripherals. Adequate for consumer-level presentations that don't need professional frame-accurate synchronization. Version 1.1 reviewed. Version 1.2 shipping. Requires color-capable Mac with 2 MB of RAM, System 6.05 or later, and a hard-disk drive. $695. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Dec '91) [MF#891]

**MediaTracks 🐁🐁🐁🐁½**
MediaTracks (formerly called ScreenRecorder) is a utility for recording on-screen Mac activities. Ideal for presentations and training. Uses a tape-recorder model; "tapes" can include sounds recorded with applications such as MacRecorder and can be a fixed length or a loop. Version 1.0 reviewed. Requires Mac Plus or later. $295; Multimedia Pack, $495. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Dec '90) [MF#892]

**MORE 🐁🐁🐁🐁🐁**
MORE's outlines can be instantly transformed into presentations. Dozens of templates are provided, and users can also design their own. Slide-making tools are formidable. Version 3.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $395. Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014. 800-441-7234 or 408-253-9600. (Oct '90) ★ '86, '90 Eddy [MF#893]

**Persuasion 🐁🐁🐁🐁🐁**
Persuasion is a powerful, comprehensive desktop-presentation program. Templating and outlining capabilities have been improved considerably since the initial release, and slide shows are handled well. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.05 or later, and a hard-disk drive. $495. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Apr '90) ★ '88 Eddy [MF#894]

**PowerPoint 🐁🐁🐁🐁**
PowerPoint is an easy-to-use desktop-presentation tool. Good color schemes. Can send presentations to Genigraphics to produce color 35mm slides. Version 2.0 reviewed. Version 2.01F shipping. Requires Mac Plus or later and System 6.03 or later; hard-disk drive recommended. $395. Microsoft Corp., One Microsoft Way, Redmond, WA 98052. 800-426-9400 or 206-882-8080. (Aug '87) ★ '87 Eddy [MF#895]

### INPUT DEVICES

**Appoint Thumbelina Mac 🐁🐁🐁**
This tiny trackball works well but is best used by the nimble-fingered. Requires some dexterity and practice. Occupies no more desk space than one Oreo cookie. Unlike larger desktop trackballs, the Thumbelina Mac can be operated while supported in your hand. Requires Mac SE or later. $99. Appoint, 7026 Koll Ctr. Pkwy., Ste. 230, Pleasanton, CA 94566. 800-448-1184 or 510-417-0611. (May '92) [MF#896]

**CalComp DrawingBoard 2300A 🐁🐁🐁🐁½**
This full-featured drawing tablet lets you resize and reposition a drawing area. Six different input devices (pens and pucks) and several software templates are available. Requires Mac SE or II series. $495 to $2,995, depending on size. CalComp Digitizer Products Group, 14555 N. 82nd St., Scottsdale, AZ 85260. 800-458-5888 or 602-948-6540. (Oct '89) [MF#897]

**CalComp DrawingBoard II 🐁🐁🐁🐁🐁**
Part of CalComp's 3300 series, this lightweight digitizing tablet has excellent control-panel software to customize response to user input. Tablet has comfortable design and connects to ADB port. Cordless pen and puck are battery-powered, easy to use, and accurate. Planned pressure-sensitive version of this tablet will use serial port. Requires Macintosh SE or later. With corded puck, $495; with cordless puck, $645.

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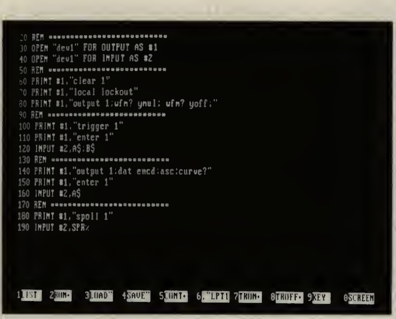

```
20 REM **************************
30 OPEN "dev1" FOR OUTPUT AS #1
40 OPEN "dev1" FOR INPUT AS #2
50 REM **************************
60 PRINT #1,"clear 1"
70 PRINT #1,"local lockout"
80 PRINT #1,"output 1;wfm? ymul; wfm? yoff;"
90 REM **************************
100 PRINT #1,"trigger 1"
110 PRINT #1,"enter 1"
120 INPUT #2,A$;B$
130 REM **************************
140 PRINT #1,"output 1:dat encd:asc:curve?"
150 PRINT #1,"enter 1"
160 INPUT #2,A$
170 REM **************************
180 PRINT #1,"spoll 1"
190 INPUT #2,SPR%
```

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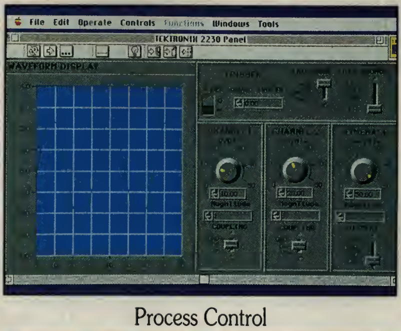

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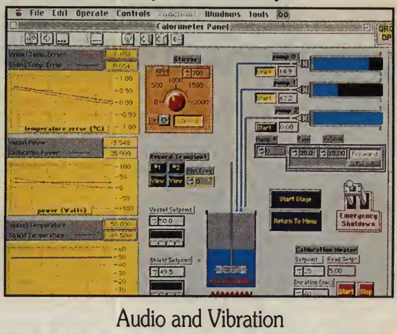
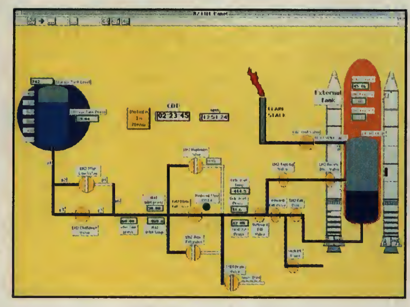


Process Control



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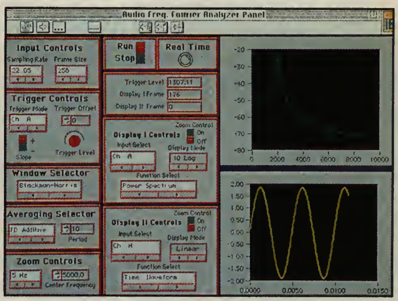
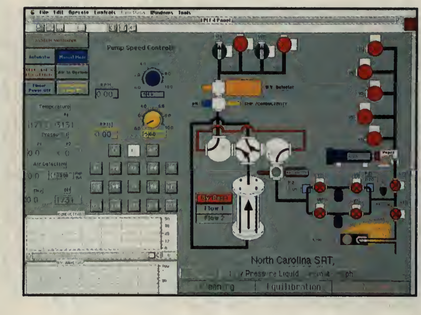
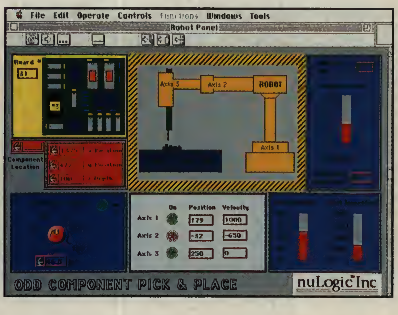


Chromatography



Manufacturing and Production



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CalComp Digitizer Products Group, 14555 N. 82nd St., Scottsdale, AZ 85260. 800-458-5888 or 602-948-6540. (Apr '92) [MF#898]

**CoStar Stingray 🐭🐭🐭½**
The Stingray trackball does resemble a marine creature. Low profile and simple operation may be just right for ham-fisted right- or left-handed users. Switch underneath the base lets you set the two wide, symmetrical buttons either to click and click-lock or so that both simply click. Attached ADB cord is too short to reach around Mac, so connection to keyboard port is required. Requires Mac SE or later. $129. CoStar Corp., 22 Bridge St., Greenwich, CT 06830. 800-426-7827 or 203-661-9700. (May '92) [MF#899]

**Curtis MVP Mouse 🐭🐭🐭½**
The Curtis MVP Mouse is actually a trackball, and it accepts an unusual option: a foot switch that can be used for clicking or to activate a keyboard command equivalent. The trackball has three buttons configured to suit left- and right-handed users. Requires Mac SE or later. $149.95; MVP Foot Switch, $29.95. Curtis Manufacturing Co., Inc., 30 Fitzgerald Dr., Jaffrey, NH 03452. 800-548-4900 or 603-532-4123. (May '92) [MF#900]

**EMAC Silhouette 🐭🐭🐭½**
The Silhouette trackball is ergonomically designed if you're right-handed. Curved base supports your hand comfortably while you hold the ball between thumb and finger. Comes with four colored balls, each with a different weight. Included software assigns keyboard command equivalents to third button and varies speed of tracking and double-clicking. Requires Mac SE or later. $99.95. EMAC (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (May '92) [MF#901]

**Kensington Microware Turbo Mouse ADB 🐭🐭🐭🐭🐭**
This trackball lets you reverse mousing and locking functions for left-handed users. Has a chording feature for user-specified keyboard-command-equivalent functions. Requires Mac SE or later for standard ADB version. $169.95; Turbo Mouse Plus version for earlier Macs, $169.95. Kensington Microware Ltd., 2855 Campus Dr., San Mateo, CA 94403. 800-535-4242 or 415-572-2700. (Oct '89) [MF#902]

**Kurta IS 🐭🐭🐭½**
The Kurta IS is a digitizing tablet that's available either in the IS/ADB configuration (for connection to an ADB port) or in the IS/ONE configuration (which uses the Mac's serial port). Both configurations work with corded or cordless pens and pucks, but accuracy may suffer if input pen is tilted. Complex documentation. Requires Mac SE or later for IS/ADB; requires Mac Plus or later for IS/ONE. IS/ADB, $495 to $965; IS/ONE, $525 to $945. Kurta Corp., 3007 E. Chambers St., Phoenix, AZ 85040. 800-445-8782 or 602-276-5533. (Apr '92) [MF#903]

**Logitech MouseMan 🐭🐭🐭🐭🐭**
The MouseMan is a three-button, programmable mouse with a comfortable rounded design. Its MouseKey software controls speed, tracking, and sensitivity. Extra buttons can be programmed to activate different commands depending on the Mac's active application. $129. Logitech, Inc., 6505 Kaiser Dr., Fremont, CA 94555. 800-231-7717 or 510-795-8500. (Mar '92) [MF#904]

**Logitech TrackMan 🐭🐭🐭🐭½**
TrackMan is an elegant, practical trackball with versatile software. Ergonomic design has golf-ball-sized ball and three buttons in a rectangular base. Unusual setup uses thumb to move ball and fingers to activate buttons. Provides ability to change all assigned button settings, depending on the active application. Requires Mac SE or later. $149. Logitech, Inc., 6505 Kaiser Dr., Fremont, CA 94555. 800-231-7717 or 510-795-8500. (May '92) ★ '91 Eddy [MF#905]

**Mac-101 🐭🐭🐭🐭**
This expanded keyboard has a keypad, 15 function keys, and more. The 101-Keys DA lets you define macros. Good feel and response. ADB versions available. $194.95. DataDesk International, Inc., 9330 Eton Ave., Chatsworth, CA 91311. 800-826-5398 or 818-998-4200. (Apr '88) [MF#906]

**MacPro Plus Keyboard 🐭🐭🐭🐭½**
The MacPro Plus Keyboard is an easily customizable alternative to Apple's Extended Keyboard. Both the "touch" (resistance to pressure) and assigned characters of individual keys can be changed to suit different typing styles and special projects. ADB connections on the back of the keyboard prevent it from sitting flush against the Mac. Includes Tempo II macro utility. $179. Key Tronic Corp., P.O. Box 14687, Spokane, WA 99214. 800-262-6006 or 509-928-8000. (Sept '91) [MF#907]

**MicroSpeed MacTRAC 🐭🐭🐭🐭**
The MacTRAC has three buttons located above the trackball. Light indicator signals that the lock button has been pushed. Powerful software offers wide range of custom options, including equal ease of use for right- or left-handed people. Version 2.0 reviewed. ADB version requires Mac SE or later. $99; ADB version, $119. MicroSpeed, Inc., 44000 Old Warm Springs Blvd., Fremont, CA 94538. 800-232-7888 or 510-490-1403. (May '92) [MF#908]

**Mouse Systems A3 Mouse 🐭🐭🐭🐭½**
The A3 Mouse is an accurate, three-button, A/UX-compatible input device. Has 300-dpi tracking resolution. Uses optical sensor and special pad to provide smooth, responsive action. Control panel software programs extra buttons to activate user-defined commands. $149.95. Mouse Systems, 47505 Seabridge Dr., Fremont, CA 94538. 510-656-1117. (Mar '92) [MF#909]

**Mouse Systems Little Mouse 🐭🐭🐭🐭½**
The one-button Little Mouse uses infrared light reflected from a special pad to track mouse movement. Compact, with no moving parts. Improved precision for small on-screen objects. Must use included mouse pad. Tracking resolution is 300 dpi. $134.95. Mouse Systems, 47505 Seabridge Dr., Fremont, CA 94538. 510-656-1117. (Mar '92) [MF#910]

**Advanced Gravis Computer Technology MouseStick 🐭🐭🐭🐭½**
The MouseStick is a joystick with programmable settings. Buttons can perform mouse-type functions or execute keyboard commands with single-, double-, or triple-clicking. Available in ADB and non-ADB versions. $99.95. Advanced Gravis Computer Technology Ltd., 7400 MacPherson, Ste. 111, Burnaby, British Columbia V5J 5B6, Canada. 604-431-5020. (Oct '89) [MF#911]

**Numonics GraphicMaster 🐭🐭🐭🐭**
The GraphicMaster is a light, portable digitizing tablet that offers easy plug-and-play setup. Has well-designed, accurate pen and puck. No cordless pointing devices are available. Requires Mac SE or later. $595. Numonics Corp., 101 Commerce Dr., Montgomeryville, PA 18936. 215-362-2766. (Apr '92) [MF#912]

**Sophisticated Circuits PowerKey 🐭🐭🐭🐭½**
The PowerKey is a well-made add-on device that starts Classics, SEs, and SE/30s with a power key. Included software lets you program future events such as turning on the Mac or executing a specified keystroke combination. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Classic, SE, or SE/30. $119. Sophisticated Circuits, 19017 120th Ave. N.E., Ste. 106, Bothell, WA 98011. 206-485-7979. (Sept '90) [MF#913]

**Voice Navigator II 🐭🐭🐭🐭½**
This package includes sophisticated speech-recognition software and the elegant Navigator, a microphone and attached SCSI-interface box that digitizes sound into patterns the Mac can recognize. Surprisingly accurate voice recognition after the software has adapted to an individual's voice. Replicates many frequent keyboard commands and learns new ones easily. Version 2.0 reviewed. Requires Macintosh Plus or later. $899.97. Articulate Systems, 600 W. Cummings Park, Ste. 4500, Woburn, MA 01801. 800-443-7077 or 617-935-5656. (Sept '91) ★ '89, '90 Eddy [MF#914]

**Wacom SD-510C Cordless Digitizer 🐭🐭🐭🐭🐭**
The SD-510C Cordless Digitizer is light and thin. Uses a pressure-sensitive stylus requiring neither a cord nor a battery. Connects to the modem port. Sensing area is 6 x 9 inches. Resolution is 770 lpi with high accuracy. Much more responsive than a mouse. Requires Mac Plus or later. $695. Wacom Technology Corp., 501 S.E. Columbia Shores Blvd., Ste. 300, Vancouver, WA 98661. 800-922-6613 or 206-750-8882. (June '90) [MF#915]

**Wacom SD420E 🐭🐭🐭🐭🐭**
The Wacom SD420E is a digitizing tablet that's simply constructed and maintenance-free. Pressure-sensitive in combination with included cordless pen but not with included cordless puck. Excellent software controls puck options and pen's pressure sensitivity. Mouse click is always a feather-touch effort, independent of click-and-drag sensitivity. Pen and puck don't require batteries. Includes basic stand-alone application called PressurePaint, along with plug-ins for SuperPaint and UltraPaint. Several programs, including FreeHand, ColorStudio, Oasis, Painter, Photoshop, and Studio/32, include pressure-sensitive tools for this tablet. Requires Mac Plus or later. $995. Wacom Technology Corp., 501 S.E. Columbia Shores Blvd., Ste. 300, Vancouver, WA 98661. 800-922-6613 or 206-750-8882. (Apr '92) [MF#916]

## MUSIC & SOUND

**Alchemy 🐭🐭🐭🐭🐭**
Alchemy loads and edits digitally sampled sounds from any commercial sound sampler. Good interface and feature set. Reliable performance. Excellent manual. Version 1.1 reviewed. Version 2.23 shipping. Requires Mac Plus or later with 2 MB of RAM, MIDI or RS-422 interface, a hard-disk drive, and sampler. $695. Passport Designs, Inc., 100 Stone Pine Rd., Half Moon Bay, CA 94019. 415-726-0280. (Oct '88) ★ '88 Eddy [MF#917]

**Apple MIDI Interface 🐭🐭🐭**
The Apple MIDI Interface is a simple musical-instrument digital interface with a 1-MHz clock rate. Has only one MIDI input and one output. Requires Mac Plus or later. $99. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (June '88) [MF#918]

**Audiomedia 🐭🐭🐭🐭🐭**
Audiomedia turns the Mac into a self-contained digital-recording studio. Can play back, edit, and

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mix sound files and subject them to a variety of special effects. Has CD-quality sound that occupies huge amounts of hard-disk space (10 MB of disk space per minute of sound). Version 1.0 reviewed. Version 2.02 shipping. Requires Mac II series, 2 MB of RAM, and a hard-disk drive. $995. Digidesign, 1360 Willow Rd., Ste. 101, Menlo Park, CA 94025. 415-688-0600. (Oct '90) ★ '89 Eddy [MF# 919]

**Beethoven's String Quartet** 🐭🐭🐭🐭🐭
Warner New Media's second Audio Notes CD-ROM provides an ideal introduction to Beethoven's String Quartet No. 14, Op. 131. The String Quartet is easy to install and navigate. The graphic design is well suited to HyperCard's intuitive style. Requires Mac Plus or later, HyperCard 1.2.5 or later, a hard-disk drive, a CD-ROM drive, and speakers or headphones. $66. Warner New Media, 3500 W. Olive Ave., Ste. 1050, Burbank, CA 91505. 818-955-9999. (Mar '91) [MF#920]

**Beyond** 🐭🐭🐭🐭
Beyond is a competent music sequencer for midlevel users. Does a good job of implementing the Mac interface. Excellent manual and tutorial. Version 1.5 reviewed. Version 2.1 shipping. Requires Mac Plus or later, MIDI interface, and MIDI synthesizer. $149 direct. Dr. T's Music Software, Inc., 124 Crescent Rd., Needham, MA 02194. 617-455-1454. (Feb '91) [MF#921]

**ConcertWare+ MIDI** 🐭🐭🐭🐭
ConcertWare+ MIDI is a composition and transcription program that can record multiple notes from a MIDI keyboard. Easy to use if you can read music. Handles eight tracks of eight voices each. Version 4.0 reviewed. Version 5.22 shipping. Requires Mac Plus or later. $189.95. Great Wave Software, 5353 Scotts Valley Dr., Ste. E, Scotts Valley, CA 95066. 408-438-1990. (Dec '87) [MF#922]

**Cubase** 🐭🐭🐭🐭
This Mac MIDI sequencer has a good interface that lets you edit while a sequence is playing. Provides four windows for editing of different instruments at the MIDI-event level. Has intuitive toolbox-style control over sounds as well as a logical editor that fine-tunes compositions according to Boolean selection and editing criteria. Timing resolution is only 192 ticks per quarter note. Includes driver for DigiDesign's SampleCell NuBus card. Compatible with Apple's MIDI Manager. Copy-protected. Version 1.8 reviewed. Requires Mac II series or higher with 4 MB of RAM and a hard-disk drive. $495. Steinberg/Jones, 17700 Raymer St., Northridge, CA 91325. 818-993-4091. (Feb '92) [MF#923]

**Cue: The Film Music System** 🐭🐭🐭🐭½
This powerful and versatile assistant for scoring films automates spotting and logging cue points and searching for matching tempos. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac 512Ke or later; hard-disk drive recommended. $595. Opcode Systems, Inc., 3641 Haven Dr., Ste. A, Menlo Park, CA 94025. 415-369-8131. (Feb '89) [MF#924]

**Deck** 🐭🐭🐭🐭
Deck is a completely software-generated recording system with an interface resembling the famous Tascam PortaStudio four-track cassette recorder. MIDI and acoustic input can be mixed and sychronized, producing CD-quality stereo that's easy to access and manipulate. Version 1.0 reviewed. Version 1.03 shipping. Requires Digidesign's Audiomedia or Sound Tools card. $349. Digidesign, 1360 Willow Rd., Ste. 101, Menlo Park, CA 94025. 415-688-0600. (Feb '91) ★ '90 Eddy [MF#925]

**Deluxe Music Construction Set** 🐭🐭🐭🐭
Deluxe Music Construction Set lets you enter as many as 48 voices on eight staves and play the music through the Mac's internal speaker and/or via MIDI. Copy-protected. Version 2.0 reviewed. Version 2.5 shipping. Requires Mac Plus or later; hard-disk drive recommended. $129.95. Electronic Arts, 1450 Fashion Island Blvd., San Mateo, CA 94404. 800-245-4525 or 415-571-7171. (June '88) [MF#926]

**Digidesign MacProteus** 🐭🐭🐭🐭½
The MacProteus is a Mac II NuBus card. The card operates as a MIDI-controlled playback device for desktop music production and can be controlled from most programs that use Apple's MIDI Manager and PatchBay software. Can play 16-bit linear, 39-KHz mono or stereo samples but cannot create them. Version 1.0f2 reviewed. Requires Mac II series or higher. $895. Digidesign, 1360 Willow Rd., Ste. 101, Menlo Park, CA 94025. 415-688-0600. (Feb '91) ★ '90 Eddy [MF#927]

**Dr. T's Intro+** 🐭🐭🐭🐭
For beginning MIDI musicians on a budget, Dr. T's Intro+ is ideal. Includes Dr. T's Beyond 1.6 sequencing software, Great Wave Software's Music Writer 5.2.1 notation program, two MIDI cables, and an Altech 1-in 3-out MIDI interface. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $399; upgrade to Beyond 2.0, $40. Dr. T's Music Software, Inc., 124 Crescent Rd., Needham, MA 02194. 617-455-1454. (Dec '91) [MF# 928]

**Encore** 🐭🐭🐭🐭½
Encore is a quasi-rule-based music-notation program with a nice interface. It supports multiple files and can deal with large scores. Good printing options. Version 1.1.6a reviewed. Version 2.5 shipping. Requires Mac Plus or later, a PostScript or QuickDraw printer, and a hard-disk drive; MIDI interface optional. $595. Passport Designs, Inc., 100 Stone Pine Rd., Half Moon Bay, CA 94019. 415-726-0280. (May '90) [MF#929]

**EZ Vision** 🐭🐭🐭🐭½
Powerful enough for beginners, EZ Vision is a general-purpose sequencer that uses a standard tape-recorder analogy, offering many of the best features in OpCode's professional sequencer, Vision. Works with Apple's MIDI Manager but doesn't recognize SMPTE time code. Version 1.0 reviewed. $149. Opcode Systems, Inc., 3641 Haven Dr., Ste. A, Menlo Park, CA 94025. 415-369-8131. (Feb '91) [MF#930]

**Finale** 🐭🐭🐭🐭½
Finale is a complex, revolutionary music-notation program. Packs power and has a much-improved interface. Provides absolute control over all the music elements in large-scale composition and/or publishing projects. Version 2.0 reviewed. Version 2.63 shipping. Requires Mac Plus or later, a MIDI instrument and interface, a hard-disk drive, and a printer. $749. Coda Music Software, 1401 E. 79th St., Bloomington, MN 55425. 800-843-2066 or 612-854-1288. (May '90) [MF# 931]

**Galaxy** 🐭🐭🐭🐭½
Galaxy is a universal patch-librarian program for MIDI synthesizers. When instruments are organized in a bundle, an entire Galaxy setup can be loaded with one command. Has many features, is easy to use, and allows connection to Vision (Opcode's professional sequencing program). Version 1.0 reviewed. Version 1.0.2 MI shipping. $249. Opcode Systems, Inc., 3641 Haven Dr., Ste. A, Menlo Park, CA 94025. 415-369-8131. (Nov '90) [MF#932]

**Harmony Grid** 🐭🐭🐭🐭½
Harmony Grid offers an experiential approach to harmony theory. Uses a grid to show scales and chords as repeating patterns. Users play tones by moving the mouse over the grid, resulting in improvisation without requiring any training or technique. Supports MIDI. Version 1.05 shipping. Requires Mac Plus or later; MIDI synthesizer recommended. $99. VPL Research, Inc., 656 Bair Island Rd., Third Floor, Redwood City, CA 94063. 415-361-1710. (Aug '90) [MF#933]

**MacRecorder Sound System** 🐭🐭🐭🐭½
This audio digitizer can add sounds to your Mac system, animations, or HyperCard stacks. HyperSound Toolkit makes adding sounds to stacks easy. Version 2.0 reviewed. Version 1.0 Pro shipping. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $349. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Jan '90) [MF#934]

**Magic Flute Audio Notes** 🐭🐭🐭🐭
This CD-ROM gives a thorough introduction to Mozart's opera. Nonintuitive interface but manageable. Attractive graphics. Difficult to install. Requires Mac Plus or later, System 6.03 or later, a hard-disk drive, a CD-ROM drive, and speakers or headphones. $66. Warner New Media, 3500 W. Olive Ave., Ste. 1050, Burbank, CA 91505. 818-955-9999. (Nov '90) [MF#935]

**Master Tracks PRO** 🐭🐭🐭🐭½
This full-featured second-generation MIDI sequencer adheres well to the Mac interface. Has graphic controller editing. Version 4.0 reviewed. Version 5.0 shipping. Requires Mac Plus or later, a hard-disk drive, and MIDI interface. $495; Trax 2.2 (junior version), $99. Passport Designs, Inc., 100 Stone Pine Rd., Half Moon Bay, CA 94019. 415-726-0280. (Dec '87) [MF#936]

**MIDIplay** 🐭🐭🐭🐭½
MIDIplay is a HyperCard stack that successfully integrates MIDI sequences into Mac-based multimedia presentations. XCMDs provided in this stack work with HyperCard, SuperCard, and MacroMind Director. Exports MIDI music files to HyperCard buttons, other stacks, or the Clipboard, but it can also export many of its own sound-control buttons to other stacks. Lets you fine-tune characteristics of MIDI sounds. Version 1.0 reviewed. $59.95. Opcode Systems, Inc., 3641 Haven Dr., Ste. A, Menlo Park, CA 94025. 415-369-8131. (May '91) [MF#937]

**Music Mouse** 🐭🐭🐭🐭🐭
This program gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, and so on. Version 1.0 reviewed. Version 2.04 shipping. Requires Mac Plus or later. $49 direct. Dr. T's Music Software, Inc., 124 Crescent Rd., Needham, MA 02194. 617-455-1454. (May '87) [MF#938]

**Performer** 🐭🐭🐭🐭
Performer is a full-featured MIDI sequencer that includes looping, SMPTE syncing, 32 simultaneous Ins and Outs, unlimited overdubbing, and compatibility with Professional Composer for transcription. Version 2.2 reviewed. Version 3.61 shipping. Requires Macintosh Plus or later with 2 MB of RAM, System 6.03 or later, MIDI interface, and two floppy drives; hard-disk drive recommended. $495; MIDI Time Piece interface, $495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142.

MICE RATINGS ....... 🐭 ........ 🐭½ ........... 🐭🐭 ............ 🐭🐭½ ............ 🐭🐭🐭 ........... 🐭🐭🐭½ ........... 🐭🐭🐭🐭 .......... 🐭🐭🐭🐭½ ............ 🐭🐭🐭🐭🐭

FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

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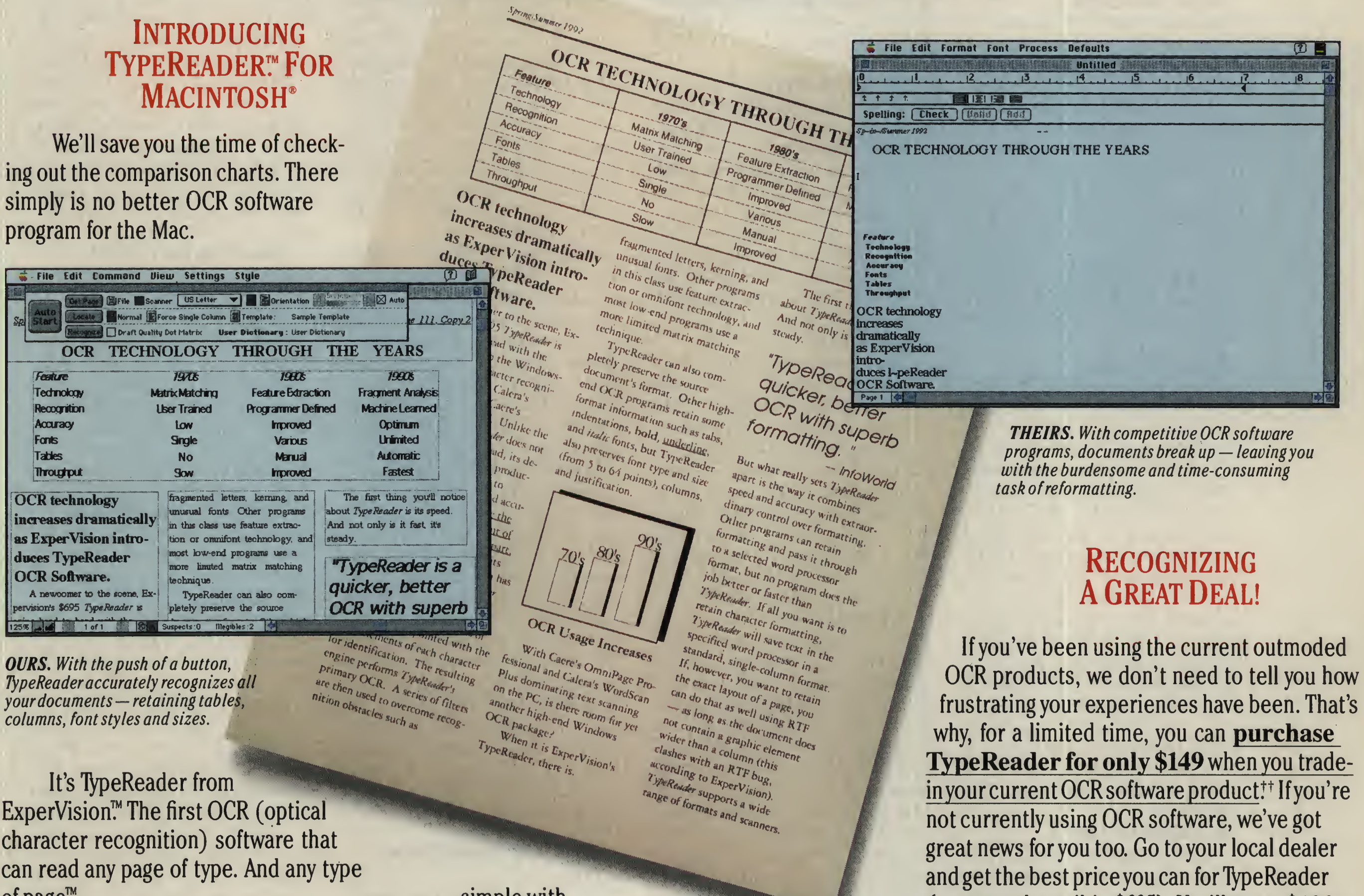

OCR TECHNOLOGY THROUGH THE YEARS

| Feature | 1970s | 1980s | 1990s |
|---|---|---|---|
| Technology | Matrix Matching | Feature Extraction | Fragment Analysis |
| Recognition | User Trained | Programmer Defined | Machine Learned |
| Accuracy | Low | Improved | Optimum |
| Fonts | Single | Various | Unlimited |
| Tables | No | Manual | Automatic |
| Throughput | Slow | Improved | Fastest |

**OCR technology increases dramatically as ExperVision introduces TypeReader OCR Software.**

A newcomer to the scene, Expervision's $695 *TypeReader* is

fragmented letters, kerning, and unusual fonts. Other programs in this class use feature extraction or omnifont technology, and most low-end programs use a more limited matrix matching technique.

TypeReader can also completely preserve the source

The first thing you'll notice about *TypeReader* is its speed. And not only is it fast, it's steady.

*"TypeReader is a quicker, better OCR with superb*

Sp-in-/Summer 1992

OCR TECHNOLOGY THROUGH THE YEARS

Feature
Technology
Recognition
Accuracy
Fonts
Tables
Throughput

OCR technology increases dramatically as ExperVision introduces l~peReader OCR Software.

*Spring/Summer 1992*

OCR TECHNOLOGY THROUGH TH

| Feature | 1970's | 1980's |
|---|---|---|
| Technology | Matrix Matching | Feature Extraction |
| Recognition | User Trained | Programmer Defined |
| Accuracy | Low | Improved |
| Fonts | Single | Various |
| Tables | No | Manual |
| Throughput | Slow | Improved |

**OCR technology increases dramatically as ExperVision introduces TypeReader Software.**

fragmented letters, kerning, and unusual fonts. Other programs in this class use feature extraction or omnifont technology, and most low-end programs use a more limited matrix matching technique.

TypeReader can also completely preserve the source document's format. Other high-end OCR programs retain some format information such as tabs, indentations, **bold**, underline, and *italic* fonts, but TypeReader also preserves font type and size (from 5 to 64 points), columns, and justification.

OCR Usage Increases

for identification. The resulting engine performs *TypeReader's* primary OCR. A series of filters are then used to overcome recognition obstacles such as

With Caere's OmniPage Professional and Calera's WordScan Plus dominating text scanning on the PC, is there room for yet another high-end Windows OCR package?

When it is ExperVision's TypeReader, there is.

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"TypeReader is a quicker, better OCR with superb formatting."

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But what really sets *TypeReader* apart is the way it combines speed and accuracy with extraordinary control over formatting. Other programs can retain formatting and pass it through to a selected word processor format, but no program does the job better or faster than *TypeReader*. If all you want is to retain character formatting, *TypeReader* will save text in the specified word processor in a standard, single-column format. If, however, you want to retain the exact layout of a page, you can do that as well using RTF — as long as the document does not contain a graphic element wider than a column (this clashes with an RTF bug, according to ExperVision). *TypeReader* supports a wide range of formats and scanners.

***OURS.** With the push of a button, TypeReader accurately recognizes all your documents — retaining tables, columns, font styles and sizes.*

***THEIRS.** With competitive OCR software programs, documents break up — leaving you with the burdensome and time-consuming task of reformatting.*

It's TypeReader from ExperVision.™ The first OCR (optical character recognition) software that can read any page of type. And any type of page.™

Because TypeReader utilizes a revolutionary new OCR technology, Macintosh users will be able to read documents more accurately and automatically than ever before. Not just the crisp and clear documents, but the real documents that cross your desk every day. Even the hard to read faxes. You'll save both time and money by no longer having to re-type your existing documents.

Because we Macintosh users expect and demand graphics that give us what we see on screen, TypeReader has a WYSIWYG† editor which preserves all the formatting of your original document, including margins, tabs, columns, and tables. And, proofing is made simple with TypeReader's exclusive On-Screen Verifier which allows you to view suspect characters from the *original* document.

No other OCR software product can make these claims.

TypeReader goes even further. By integrating Hewlett-Packard's AccuPage technology, complex colored or stained documents can also be recognized accurately.

And, TypeReader is completely System 7 and 6 savvy.

You might think that all of this was enough to motivate anyone to buy the new TypeReader. But wait, there's more!

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If you've been using the current outmoded OCR products, we don't need to tell you how frustrating your experiences have been. That's why, for a limited time, you can **purchase TypeReader for only $149** when you trade-in your current OCR software product!†† If you're not currently using OCR software, we've got great news for you too. Go to your local dealer and get the best price you can for TypeReader (suggested retail is $695). You'll get a **$100 rebate** immediately! That's right, $100 off your purchase price!†††

To see TypeReader in action, contact CompUSA, Egghead, Computer City, MacConnection, MacWarehouse or your local dealer. Or, give us a call for the name of the TypeReader dealer nearest you at: (800-732-3897) **800-READ-TYPE**

EXPERVISION

†What you SCAN is what you get. ††Offer applies only to users of WordScan, WordScan Plus, OmniPage, OmniPage Professional, OmniPage Direct, ReadRight, Read it!, AccuText, Recognize, and Perceive. †††Offer expires 8/31/92. ExperVision, the ExperVision logo, TypeReader, "Any page of type. And any type of page," and On-Screen Verifier are trademarks of ExperVision, Inc. AccuPage is a trademark of Hewlett-Packard. All other names are trademarks of their respective holders. ©1992 ExperVision, Inc. All rights reserved. ExperVision, 3590 N. First Street, San Jose, CA 95134, (408) 428-9988.

**CIRCLE 180 ON READER SERVICE CARD.**

617-576-2760. (Jan '88) [MF# 939]

**Practica Musica** 🐭🐭🐭🐭🐭
Practica Musica uses an interactive game-and-practice approach to teach music theory and ear training. Excellent tool for serious music study as well as for developing a trained ear for intervals, chords, and melodies. Supports MIDI. Version 1.5 reviewed. Version 2.3 shipping. Requires Mac Plus or later. $125. Ars Nova Software, P.O. Box 637, Kirkland, WA 98083. 800-445-4866 or 206-889-0927. (Aug '90) ★ '87 Eddy [MF#940]

**Rite of Spring** 🐭🐭🐭🐭🐭
Featuring a wonderful performance of Stravinsky's famous work by Charles Dutoit and the Montreal Symphony, this CD-ROM also includes lucid historical and analytical information. The disc is superbly programmed in HyperCard. Version 1.0.1 reviewed. Requires Mac Plus or later, HyperCard 2.0, a hard-disk drive, and a CD-ROM drive. $99.95. The Voyager Company, 1351 Pacific Coast Hwy., Santa Monica, CA 90401. 800-443-2001 or 310-451-1383. (Aug '91) [MF# 941]

**SampleCell** 🐭🐭🐭🐭🐭
SampleCell is a sample-playing Mac II NuBus card. Excellent software tools. Comes with more than 600 MB of prerecorded sounds on a CD-ROM. Hardware comprises a SIMM-less NuBus card socketed for 8 MB of RAM. Card can store as much as 100 seconds of 16-bit sound sampled at 44.1 kHz. Each card runs 16 MIDI channels. Supports MIDI keyboards, sequencers, and programs compatible with Apple's MIDI Manager. Version 1.1 reviewed. Version 1.3 shipping. Requires Mac II series, a hard-disk drive, and CD-ROM drive. $1,995 with no installed RAM. Digidesign, 1360 Willow Rd., Ste. 101, Menlo Park, CA 94025. 415-688-0600. (July '91) [MF#942]

**SoundMaster** 🐭🐭🐭🐭½
SoundMaster is an elegant INIT/control panel that lets you assign sounds to a wide range of actions, including startup, shut down, disk insertion or ejection, and assorted keystrokes. Version 1.6.5 shipping. Requires System 4.1 or later. $20. Bruce Tomlin, 15801 Chase Hill Blvd., Ste. 109, San Antonio, TX 78256. (Nov '89) [MF#943]

**Studio Vision** 🐭🐭🐭🐭½
Studio Vision seamlessly integrates MIDI data with digital audio recording. It lets you record vocals or non-MIDI instruments in the same document as MIDI data and then play it back along with music. Actually an extension of Vision (Opcode's MIDI sequencer), Studio Vision adds 16 tracks of audio data (assignable to 2 channels) to Vision's 99 tracks (assignable to 32 MIDI channels). Version 1.21 reviewed. Version 1.32 shipping. $995. Opcode Systems, Inc., 3641 Haven Dr., Ste. A, Menlo Park, CA 94025. 415-369-8131. (June '91) ★ '91 Eddy [MF#944]

**Trax** 🐭🐭🐭½
Simple enough for beginners, Trax is a solid, general-use sequencer that uses a standard tape-recorder analogy. Works with Apple's MIDI Manager but doesn't recognize SMPTE time code. Version 1.2 reviewed. Version 2.2 shipping. Requires Mac Plus or later and MIDI interface; hard-disk drive recommended. $99. Passport Designs, Inc., 100 Stone Pine Rd., Half Moon Bay, CA 94019. 415-726-0280. (Feb '91) [MF# 945]

**Turbosynth** 🐭🐭🐭🐭🐭
Turbosynth creates sounds for a digital sampler, using modular-synthesis techniques. Good harmonic spectral inverter. Lacks an easy method of multisampling. Version 2.0 shipping. Requires Mac Plus or later, sampler, and MIDI interface. $349. Digidesign, 1360 Willow Rd., Ste. 101, Menlo Park, CA 94025. 415-688-0600. (Oct '88) [MF#946]

**UpBeat** 🐭🐭🐭🐭
UpBeat turns the Mac into a front panel for a highly complex and versatile drum machine. Input patterns with mouse, MIDI keyboard, or drum machine. Version 1.2 reviewed. Version 2.05 shipping. Requires Mac Plus or later, MIDI interface, and MIDI synthesizer. $129. Dr. T's Music Software, Inc., 124 Crescent Rd., Needham, MA 02194. 617-455-1454. (May '88) [MF#947]

**Vision** 🐭🐭🐭🐭½
This Mac sequencer supports full SMPTE control, event-list and graphics editing; real-time and step recording; looping; tempo, meter, and dynamic changes; and standard MIDI files. Copy-protected. Version 1.01 reviewed. Version 1.2 shipping. Requires Mac Plus or later, MIDI interface, and MIDI synthesizer. $495. Opcode Systems, Inc., 3641 Haven Dr., Ste. A, Menlo Park, CA 94025. 415-369-8131. (Dec '89) [MF#948]

## NETWORKING & CONNECTIVITY

**3Com EtherLink/SE** 🐭🐭🐭🐭
This Ethernet interface has very fast SE client, server, and raw performance. Version 1.0 reviewed. Requires Mac SE. $595. 3Com, 5400 Bayfront Plaza, Santa Clara, CA 95052. 800-638-3266 or 408-764-5000. (June '90) [MF# 949]

**AccessPC** 🐭🐭🐭🐭½
AccessPC is an INIT that lets the Macintosh desktop mount DOS and floppy disks as well as PC-compatible removable cartridges. Assigns Mac Type and Creator codes to DOS files, which lets specified Mac applications open them automatically without going through Apple File Exchange. Works with DOS floppy drives from Apple, PLI, and Kennect. Works well with Insignia Solutions' SoftPC running PC applications on a Mac hard-disk drive. Version 1.1 reviewed. Requires any Mac with FDHD SuperDrive, external DOS floppy drive, or removable-cartridge drive. $99. Insignia Solutions, 526 Clyde Ave., Mountain View, CA 94043. 415-694-7600. (Aug '91) [MF#950]

**AlisaTalk** 🐭🐭🐭
AlisaTalk, a file server for networked Macs, provides numerous features for VAX, DOS, and Mac interoperability. Slow for AFP file sharing and requires knowledge of VMS. Version 3.3 reviewed. Requires VAX. Ten-user license, $1,500; license for unlimited users, $4,700. Alisa Systems, 221 E. Walnut St., Ste. 175, Pasadena, CA 91101. 818-792-9474. (June '91) [MF#951]

**Apple Ethernet NB Card** 🐭🐭🐭🐭
This excellent performer in file-transfer tests has 3Com hardware and good raw performance. Requires NuBus-capable Mac; adapter required for use in IIsi. $424. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (June '90) [MF#952]

**AppleShare Server** 🐭🐭🐭🐭½
AppleShare is powerful, inexpensive file-server software. Fast and easy to configure and administer. Lets network users protect files from other users at the folder level. Allows a maximum of 120 simultaneous users, and multiple applications can run on the server. Version 3.0 reviewed. Requires a dedicated Mac SE/30 or higher with 4 MB of RAM, System 7 or later, and a large, fast hard-disk drive. $1,199. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Apr '92) [MF# 953]

**AppleTalk Internet Router** 🐭🐭🐭½
This software router can create a large internet with EtherTalk and TokenTalk. Doesn't support dial-in access but supports AppleTalk Phase 2, mixed Phase 1 and Phase 2, and token-ring networks. Version 2.0 reviewed. $399. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Apr '91) [MF#954]

**Applied Engineering QuadraLink** 🐭🐭🐭🐭🐭
QuadraLink occupies a NuBus slot and adds four 8-pin mini-DIN RS-422 serial connectors to the Mac's back panel. Uses Mac's Communication Toolbox or AE Shadow software to manage and rename the extra ports. Networking option lets you share connected devices such as printers with other users on an AppleTalk network. Version 1.01 reviewed. Requires NuBus-capable Mac. $299; five-user networking option, $100; each additional five users, $49.95. Applied Engineering, 3210 Beltline Rd., Dallas, TX 75234. 800-554-6227 or 214-241-6060. (July '92) [MF#955]

**APT Communications ComTalk** 🐭🐭🐭
This speed-demon EtherTalk/LocalTalk router is available in a variety of configurations and prices. APT Internet Manager 5.0 software is powerful but difficult to understand. Can handle as many as six LocalTalk networks but only one EtherTalk network. Supports AppleTalk Phase 2 or mixed Phase 1 and Phase 2. Version ComTalk HX shipping. $7,000 with one Ethernet and six LocalTalk ports; other configurations, $2,500 to $8,500. APT Communications, Inc., 9607 Dr. Perry Rd., Ijamsville, MD 21754. 301-831-1182. (Apr '91) [MF#956]

**Asanté MacCon+ 30i ET** 🐭🐭🐭🐭½
This PDS card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port, diagnostic software, and link-integrity LED. Five-year warranty. Requires Mac SE/30 or IIsi. $299. Asanté Technologies, Inc., 404 Tasman Dr., Sunnyvale, CA 94089. 800-662-9686 or 408-752-8388. (Sept '91) [MF#957]

**Asanté MacCon+ 30iE** 🐭🐭🐭🐭½
In an SE/30, this Ethernet device is a very fast AppleTalk Phase I server. Fast raw performance. Requires Mac SE/30 or IIsi. $299. Asanté Technologies, Inc., 404 Tasman Dr., Sunnyvale, CA 94089. 800-662-9686 or 408-752-8388. (June '90) [MF#958]

**Asanté MacCon+ IIET** 🐭🐭🐭🐭½
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port, diagnostic software, and link-integrity LED. Doesn't autoconfigure. Five-year warranty. Requires Mac II series or higher with NuBus. $249. Asanté Technologies, Inc., 404 Tasman Dr., Sunnyvale, CA 94089. 800-662-9686 or 408-752-8388. (Sept '91) [MF# 959]

**Asanté MacCon+ LC** 🐭🐭🐭🐭🐭
This PDS card provides 10BASE-T Ethernet networking capability. Includes BNC port, diagnostic software, and link-integrity LED. Five-year warranty. Requires Mac LC. $329. Asanté Technologies, Inc., 404 Tasman Dr., Sunnyvale, CA 94089. 800-662-9686 or 408-752-8388. (Sept '91) [MF#960]

**Avatar LanWay E-10T Direct Slot** 🐭🐭🐭🐭
The LanWay E-10T Direct Slot PDS card provides 10BASE-T Ethernet networking capability. Has thicknet AUI port and link-integrity LED but no diagnostic

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FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

software. Auto-configuring. Requires Mac SE/30. $345. Avatar Corp., 65 South St., Hopkinton, MA 01748. 800-282-3270 or 508-435-3000. (Sept '91) [MF#961]

**Cabletron E5000** 🐭🐭🐭🐭½
In an SE/30, this Ethernet device is a very fast AppleTalk Phase 2 server. Optional fiber-optics transceiver. Version 2.0 reviewed. Version 2.32 shipping. Requires Mac SE/30. $449 to $659. Cabletron Systems, 35 Industrial Way, P.O. Box 6257, Rochester, NH 03867. 603-332-9400. (June '90) [MF#962]

**Cabletron E6000** 🐭🐭🐭🐭
This Ethernet interface offers excellent performance. Has fiber-optics option. Version E6000-2.00 reviewed. Version E6100-2.32 shipping. Requires NuBus-capable Mac. $219 to $659. Cabletron Systems, 35 Industrial Way, P.O. Box 6257, Rochester, NH 03867. 603-332-9400. (June '90) [MF#963]

**Cabletron Systems E6010 DNI** 🐭🐭🐭½
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port, excellent diagnostic software, and link-integrity LED. Doesn't auto-configure. Good manual. Version 2.0 reviewed. Version 2.32 shipping. Requires Mac II series. $215 to $269. Cabletron Systems, 35 Industrial Way, P.O. Box 6257, Rochester, NH 03867. 603-332-9400. (Sept '91) [MF#964]

**Carbon Copy/Mac** 🐭🐭🐭½
This screen-sharing program lets you access another networked Mac for technical support, training, or file management. Supports network and modem connections in the same package. Version 2.0 reviewed. Requires Mac Plus or later and System 6.04 or later. Single user, $99; per AppleTalk zone, $299. Microcom, Inc., 500 River Ridge Dr., Norwood, MA 02062. 800-822-8224 or 617-551-1000. (Dec '91) [MF#965]

**Cayman GatorBox CS** 🐭🐭🐭½
This EtherTalk/LocalTalk hardware router offers many gateway features, including TCP/IP connectivity. No battery backup. Supports AppleTalk Phase 2, mixed Phase 1 and 2 networks, SNMP and other protocols, but has only one LocalTalk port. With optional GatorShare software, a UNIX host looks like an AppleShare server. Unlimited free technical support. $2,795; GatorShare, $1,995. Cayman Systems, 26 Landsdowne St., Cambridge, MA 02139. 617-494-1999. (Apr '91) [MF#966]

**Cayman GatorCard E/II** 🐭🐭🐭🐭½
This very fast Ethernet interface uses top-notch Racal InterLan hardware. Requires NuBus-capable Mac. $449. Cayman Systems, 26 Landsdowne St., Cambridge, MA 02139. 617-494-1999. (June '90) [MF#967]

**cc:Mail Mac Platform Pack** 🐭🐭🐭½
cc:Mail is an E-mail application featuring keyboard loading of recipient names, message prioritizing, multiple enclosures, return receipts, reply and forwarding, storage folders, and archiving. Requires PC for setup, administration, and server-to-server traffic. Version 1.22 reviewed. Version 2.0 shipping. Requires Mac Plus or later, System 6.03 or later, and network file server. $495; 8 users, $195 extra; 25 users, $595 extra. cc:Mail, 2141 Landings Dr., Mountain View, CA 94043. 800-448-2500 or 415-961-8800. (Mar '92) [MF#968]

**Compatible Systems Ether•Route** 🐭🐭🐭🐭
This hardware EtherTalk/LocalTalk router is easy to set up and use. Offers fast, solid performance. Can handle no more than two LocalTalk networks and only one EtherTalk network. Supports AppleTalk Phase 2 or mixed Phase 1 and Phase 2 networks. $1,495. Compatible Systems Corp., P.O. Box 17220, Boulder, CO 80308. 800-356-0283 or 303-444-9532. (Apr '91) [MF#969]

**Compatible Systems Ether2 TP** 🐭🐭🐭🐭
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port, diagnostic software, and link-integrity LED. Doesn't auto-configure. Version 1.0 software reviewed. Version 1.11 shipping. Requires Mac II series. $295. Compatible Systems Corp., P.O. Box 17220, Boulder, CO 80308. 800-356-0283 or 303-444-9532. (Sept '91) [MF#970]

**DAL (Data Access Language)** 🐭🐭🐭🐭
DAL is an application-programming interface for sophisticated client/server database access. Server operating systems include IBM MVS and VM as well as VAX/VMS. Database-management systems include DB2, Ingres, Oracle, Rdb/VMS, SQL/DS, Sybase, Informix, and IBM MVS and VM. Version 1.2 shipping. Free with System 7; Client Toolkit, $695; servers, $5,000 to $20,000. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Jan '91) [MF#971]

**DataClub Classic** 🐭🐭🐭½
DataClub Classic is distributed-file-server software with the look and feel of a dedicated AppleShare server. Requires an AppleTalk Phase 1 network or Phase 2 with only a router present. Incomplete manual. Version 1.1.1 reviewed. Version 2.0 shipping. Requires Macintosh Plus or later with 2 MB of RAM and System 6.03 or later. $175; three-user package, $395; ten-user package, $795. Novell, Inc., 122 E. 1700 S., Provo, UT 84606. 800-453-1267 or 801-429-7000. (Sept '91) [MF#972]

**Dayna DaynaPORT E/LC-T** 🐭🐭🐭🐭½
This PDS card provides 10BASE-T Ethernet networking capability. Lacks additional ports. Comes with diagnostic software and link-integrity LED. FPU socket on board. Lifetime warranty. Version 1.0 software reviewed. Version 1.15 shipping. Requires Mac LC. $239; with math coprocessor, $389. Dayna Communications, Inc., 50 S. Main St., Salt Lake City, UT 84144. 801-531-0600. (Sept '91) [MF#973]

**Dove FastNet SE** 🐭🐭🐭
This Ethernet interface has average performance. Good diagnostics. Version 2.2 shipping. Requires Mac SE. $299. Dove Computer Corp., 1200 N. 23rd St., Wilmington, NC 28405. 800-788-3683 or 919-763-7918. (June '90) [MF#974]

**EMAC SpeedLink/II TP** 🐭🐭🐭½
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port, NCSA Telnet, diagnostic software, link-integrity LED, and auto-configuration. Two-year warranty. Version "E" hardware, version 2.6 software shipping. Requires NuBus-capable Mac and System 6.03 or later. $449. EMAC (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (Sept '91) [MF#975]

**EMAC SpeedLink/SE30 TP** 🐭🐭🐭½
The SpeedLink/SE30 TP is a PDS card that provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port, diagnostic software, and link-integrity LED. Auto-configuring. Version "E" hardware, version 2.6 software shipping. Requires Mac SE/30 and System 6.03 or later. $449. EMAC (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (Sept '91) [MF#976]

**Engage Synchrouter/LTi** 🐭🐭🐭🐭½
This hardware/software router combination is fast and simple to use. Besides LocalTalk and dial-up asynchronous links, supports synchronous DDS, ISDN, and T1 links. Maximum speed is 500 Kbps. Interfaces include RS-232, RS-449, and V.35 but not EtherTalk. Requires Mac Plus or later and System 6.03 or later. $2,495. Engage Communication, Inc., 9053 Soquel Dr., Ste. 201, Aptos, CA 95003. 408-688-1021. (Jan '92) [MF#977]

**EtherPeek** 🐭🐭🐭🐭
This network-protocol-analyzer software can create simulated network traffic for analysis and has many useful features. Protocols supported include AppleTalk, ARP, SNMP, IPX, DECnet, XNS, and IPTalk. Version 1.04 reviewed. Version 1.5 shipping. Requires Mac SE/30 or higher with Ethernet interface and System 6.05 or later. $795. AG Group, 2540 Camino Diablo, Walnut Creek, CA 94596. 510-937-7900. (Feb '92) [MF#978]

**Farallon PhoneNET (Mac II) Card for Ethernet** 🐭🐭🐭🐭
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port and link-integrity LED. Requires Mac II series or higher. $249. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Sept '91) [MF#979]

**Farallon PhoneNET (SE/30) Card for Ethernet** 🐭🐭🐭½
This PDS card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port and link-integrity LED. Requires Mac SE/30. $249. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Sept '91) [MF#980]

**Flash** 🐭🐭🐭🐭½
Flash is a DA/INIT combination that transfers files in the background. Uses Finder folders to send and receive files. Lets you create a group folder, which sends copies of a file to everyone in a group. Good performance. Version 1.0 reviewed. Version 1.1 shipping. $199.95 per zone. Beagle Bros, 6215 Ferris Sq., Ste. 100, San Diego, CA 92121. 619-452-5500. (Sept '90) [MF#981]

**GraceLAN** 🐭🐭🐭🐭
GraceLAN is network-management software that collects detailed information about connected Macs. Version 2.0 reviewed. 50 users, $495; 200 or more users, $1,195. Technology Works, Inc., 4030 Braker Lane W., Ste. 350, Austin, TX 78759. 800-688-7466 or 512-794-8533. (Oct '91) [MF#982]

**InBox Plus** 🐭🐭🐭½
This E-mail system runs on any HFS-compliant file server such as Macs, PCs, Sun workstations, or VAXes. Clients can be either Macs or PCs. Supports AppleShare, NetWare, 3+, LAN Manager, and SitkaTOPS. There are only Memo and Phone message forms. Limited user-customizable features. Excellent manual. Allows unlimited number of file enclosures, but maximum number of users per server is 250. Version 3.0G reviewed. Requires Mac Plus or later and System 4.2 or later. 50 users, $995; 100 users, $1,995; 250 users, $5,995. Sitka Corp., 950 Marina Village Pkwy., Alameda, CA 94501. 800-445-8677 or 510-769-9669. (Mar '92) ★ '86 Eddy [MF# 983]

**Inter•Poll** 🐭🐭🐭½
This simple, reliable network-administration tool is suitable for small LocalTalk networks (5 to 20 nodes). Doesn't support EtherTalk, but can create simulated network traffic for analysis. $129.

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**MICE RATINGS** ....... 🐭 ........ 🐭½ ............ 🐭🐭 .............. 🐭🐭½ ............... 🐭🐭🐭 .............. 🐭🐭🐭½ ............ 🐭🐭🐭🐭 ........... 🐭🐭🐭🐭½ ............... 🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Feb '92) [MF#984]

**LapLink Mac III 🐭🐭🐭🐭½**
LapLink Mac III is a Mac-to-DOS and Mac-to-Mac file-transfer program that lets you have control from either computer. Uses a special cable to provide 750-Kbps transfer. It has an INIT that gives you background access to your remote Mac's files even when LapLink isn't running. Version 3.0 reviewed. Version 3.2 shipping. Requires Mac Plus or later and System 5.0 or later. $149.95. Traveling Software, Inc., 18702 N. Creek Pkwy., Bothell, WA 98011. 800-343-8080 or 206-483-8088. (Sept '90) [MF#985]

**LocalPeek 🐭🐭🐭🐭**
This network-protocol-analyzer software can create simulated network traffic for analysis and has many useful features. Supports AppleTalk and SNMP. Suitable for novices willing to learn basic protocol analysis. Version 1.01 reviewed. Version 1.11 shipping. Requires Mac SE/30 or higher and System 6.05 or later. $495. AG Group, 2540 Camino Diablo, Walnut Creek, CA 94596. 510-937-7900. (Feb '92) [MF#986]

**LocalSwitch 🐭🐭🐭🐭½**
This 16-port packet-switching LocalTalk hub can't match Ethernet speed but provides a significant performance boost for small, busy AppleTalk networks. Best suited to networks with nodes sharing resources or with traffic easily localized. May not help with heavy file transfer or file-server performance. Version SwitchMonitor 1.05 reviewed. $3,495; optional patch panel, $395. Tribe Computer Works, 1195 Park Ave., Ste. 211, Emeryville, CA 94608. 510-547-3874. (Dec '91) ★ '91 Eddy [MF#987]

**MacProducts Magic EtherNet II/10T 🐭🐭🐭½**
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port. Lacks diagnostic software and link-integrity LED. Doesn't auto-configure. Lifetime warranty. Requires Mac II series or higher. $199. MacProducts USA, Inc., 608 W. 22nd St., Austin, TX 78705. 800-622-3475 or 512-472-8881. (Sept '91) [MF#988]

**MacTOPS 🐭🐭½**
MacTOPS is file-server software designed to network Macs to other computer platforms. Slow for large networks but supports communication with DOS compatibles and UNIX machines. Files and subdirectories are accessed transparently as if they were Mac folders. Unlimited number of simultaneous users. Version 3.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later and System 6.03 or later. $299 per node; three-user pack, $399; ten-user pack, $995. Sitka Corp., 950 Marina Village Pkwy., Alameda, CA 94501. 800-445-8677 or 510-769-9669. (June '91) ★ '87 Eddy [MF#989]

**Magnalink 3000 CB 🐭🐭🐭🐭**
This hardware bridge is fast, offers excellent data compression, and provides comprehensive diagnostics. No LocalTalk interface, but allows dial-up asynchronous link and supports synchronous DDS, ISDN, and T1 links. Interfaces include RS-232, RS-449, V.35, and EtherTalk. $7,900. Magnalink Communications, 63 Nahatan St., Norwood, MA 02062. 617-255-9400. (Jan '92) [MF#990]

**Microsoft Mail 🐭🐭🐭🐭½**
This E-mail system offers excellent server architecture and performance. Efficient single-instance storage scheme is used for messages (each with unlimited number of enclosed images, text files, or sounds) to multiple addresses. Provides gateways to remote sites and dial-in remote access. Simple to install, maintain, and use. Version 3.0 reviewed. Server and each user require Mac Plus or later, System 6.03 or later, and a hard-disk drive. 5 users, $395; 20 users, $1,349; Mail Server software, $395. Microsoft Corp., One Microsoft Way, Redmond, WA 98052. 800-426-9400 or 206-882-8080. (Mar '92) ★ '87 Eddy [MF#991]

**MultiPort 🐭🐭🐭🐭½**
MultiPort is an external device that provides six new serial ports and four ADB ports. Plugs in to the Mac's two serial ports and an ADB port. Although ADB bus standard can address as many as 16 devices, Apple discourages use of more than 3, so MultiPort's optional power supply is recommended to prevent a blown fuse or toasted ADB circuitry in your Mac. Version 1.0 reviewed. Requires Mac SE or later. $169; optional power supply, $39.95. Silicon Valley Bus Co., 25546 Summit Rd., Los Gatos, CA 95030. 408-353-6600. (July '92) [MF# 992]

**National Semiconductor EtherNODE•16 NB-T 🐭🐭🐭½**
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port and good diagnostic software. Five-year warranty. Requires Mac II series. $399. National Semiconductor, 2900 Semiconductor Dr., P.O. Box 58090, Santa Clara, CA 95052. 800-538-8510 or 408-721-5020. (Sept '91) [MF#993]

**NetMinder Ethernet 🐭🐭🐭🐭**
This network-protocol-analyzer software has an intuitive, clean interface and excellent on-line help. Can't create simulated network traffic for analysis and doesn't support cut-and-paste function. Protocols supported include AppleTalk, TCP/IP, XNS, NetWare, DECnet, and Bridge/3Com. Version 1.2 reviewed. Version 2.1 shipping. Requires 2 MB of RAM, Ethernet interface, and System 6.03 or later. $595. Neon Software, Inc., 1009 Oak Hill Rd., Ste. 203, Lafayette, CA 94549. 510-283-9771. (Feb '92) [MF# 994]

**NetMinder LocalTalk 🐭🐭🐭🐭**
This network-protocol-analyzer software has an intuitive, clean interface and excellent on-line help. Can't create simulated network traffic for analysis and doesn't support SNMP. Supports only AppleTalk protocols. Version 1.0 reviewed. Version 1.1 shipping. Requires System 6.03 or later and 2 MB of RAM. $395. Neon Software, Inc., 1009 Oak Hill Rd., Ste. 203, Lafayette, CA 94549. 510-283-9771. (Feb '92) [MF#995]

**NetWare for Macintosh 🐭🐭🐭🐭½**
NetWare for Macintosh lets Macs on LocalTalk or Ethernet networks connect to a NetWare file server, using AppleShare client software. Difficult PC-based setup and administration, but offers extremely fast performance and provides connectivity to DOS, OS/2, Windows, and UNIX platforms. Powerful data-security features. Version 3.0 reviewed. Version 3.01 shipping. Requires 386- or 486-based PC for server, plus another PC for administration, and Netware 3.11 file-server software. 20 users, $895; 100 users, $1,995; NetWare 3.11, 20 users, $3,495; 100 users, $6,995. Novell, Inc., 122 E. 1700 S., Provo, UT 84606. 800-453-1267 or 801-429-7000. (Nov '91) ★ '88, '91 Eddy [MF# 996]

**Network SuperVisor 🐭🐭🐭½**
This network-management software collects detailed information about connected Macs. Slow performance and complex interface, but has beefy internal database manager with sophisticated analytical capabilities. Version 1.0.6 reviewed. Version 2.0 shipping. Requires Mac II series or higher with 4 MB of RAM, System 6.03 or later, and a hard-disk drive. 25 users, $495; 50 users; $795; unlimited license, $1,295; developer kit, $395. CSG Technologies, 530 William Penn Pl., Ste. 329, Pittsburgh, PA 15219. 800-366-4622 or 412-471-7170. (Oct '91) [MF#997]

**Nuvotech NuvoLink II-T 🐭🐭🐭🐭**
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port and link-integrity LED. Lacks diagnostic software. Doesn't auto-configure. Requires Mac II series. $395. Nuvotech, Inc., 2015 Bridgeway, Sausalito, CA 94965. 800-468-8683 or 415-331-7815. (Sept '91) [MF#998]

**Nuvotech NuvoLink SC-T 🐭🐭🐭½**
The NuvoLink SC-T is a SCSI adapter that provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port, diagnostic software, and link-integrity LED. Requires Mac SE or later. $549. Nuvotech, Inc., 2015 Bridgeway, Sausalito, CA 94965. 800-468-8683 or 415-331-7815. (Sept '91) [MF#999]

**Oracle for Macintosh 🐭🐭🐭🐭**
Oracle for Macintosh is more a development tool kit than an end-user product. It allows the creation of powerful front-end Mac applications that can access Oracle databases on mainframes and minis. Version 1.1 reviewed. Version 2.0 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. Single-user version, $299; NetWorkStation version, $299; database version, $699. Oracle Corp., 500 Oracle Pkwy., Redwood Shores, CA 94065. 800-345-3267 or 415-506-7000. (June '89) [MF#1000]

**PacerForum 🐭🐭🐭½**
The PacerForum package is a graphical-bulletin-board groupware system for your Mac LAN. For large, networked organizations, provides a convenient way to exchange ideas, files, graphics, and voice messages. Easy for novices to use. Flexible bulletin-board interface supports pop-up menus and flashing icons to alert you to new messages. Version 1.0 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.04 or later, and a hard-disk drive. Five-user pack, $549; 25-user pack, $1,995. Pacer Software, Inc., 7911 Herschel Ave., Ste. 402, La Jolla, CA 92037. 619-454-0565. (June '92) [MF#1001]

**PacerShare 🐭🐭🐭½**
PacerShare is a fast VAX server. Maximum number of simultaneous users is 500. Supports Ethernet but not LocalTalk. Requires VAX. 10 users, $2,100; 20 users, $3,750. Pacer Software, Inc., 7911 Herschel Ave., Ste. 402, La Jolla, CA 92037. 619-454-0565. (June '91) [MF#1002]

**Pathworks for Macintosh 🐭🐭🐭**
This file server for networked Macs provides self-installing extensive VAX connectivity. Bundled with Mail for Macintosh, MacTerminal 3.0, and MacX. Supports Ethernet but not LocalTalk. Cannot be administered from a Mac. Version 1.0 reviewed. Requires VAX. Client license, $308; media and documentation, $493. Digital Equipment Corp., 146 Main St., Maynard, MA 01754. 508-493-5111. (June '91) [MF# 1003]

**pcMACTERM II 🐭🐭🐭🐭**
pcMACTERM II lets your Mac take control of a DOS machine from the Mac keyboard. Allows DOS files to be printed through the Mac. Version 1.1 reviewed. Version 3.11c shipping. Requires Mac Plus or later, System 6.03 or later, printer, PC or later, DOS 2.0

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or later, and 256K of RAM. pcMACTERM II, $179; pcMACTERM/Network, $395. Dynamic Microprocessor Associates, 1776 E. Jericho Turnpike, Huntington, NY 11743. 516-462-0440. (Jan '89) [MF#1004]

**PhoneNET Connector Series 300 🐁🐁🐁🐁🐁**
PhoneNET is an AppleTalk-compatible network that can extend up to 3,000 feet. Unused preinstalled phone cabling can be used for the network. $59.95 per node; 10-user pack, $395; 50-user pack, $1,595. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Dec '86) ★ '87 Eddy [MF#1005]

**PhoneNET Liaison 🐁🐁🐁**
This software-only WAN router has a consistent response and can double as a local router. Slower than a hardware router — speed is limited by modem. Can create a large internet with EtherTalk and TokenTalk, using third-party cards. Offers support for AppleTalk Phase 2, mixed Phase 1 and Phase 2, and token-ring networks. Version 3.01 reviewed. Requires Mac Plus or later. $395. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Jan '92) ★ '88 Eddy [MF#1006]

**PhoneNET StarController Series 300 🐁🐁🐁🐁½**
The StarController distributes AppleTalk signals to devices on a network and provides network-management and troubleshooting capabilities. It's very reliable, with excellent documentation and technical support. Requires PhoneNET StarController wiring kit. $1,295. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (May '90) [MF#1007]

**QuickMail 🐁🐁🐁🐁½**
QuickMail is an E-mail package with lots of superior features. Macs and PCs can be used as clients. New, simplified addressing scheme boosts performance in a busy environment and saves disk space on server. Supports voice-mail and real-time conferencing. Version 2.5 reviewed. Version 2.51 shipping. Requires Mac Plus or later and System 6.05 or later; server requires Mac SE or higher with 2 MB of RAM and a hard-disk drive. 5 users, $399; 10 users, $599; 50 users, $2,499; 100 users, $4,699. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (Mar '92) [MF#1008]

**Racal InterLan MacConnect 🐁🐁🐁🐁½**
This fast Ethernet interface card lacks diagnostic software. Requires NuBus-capable Mac. $495. Racal InterLan, 155 Swanson Rd., Boxborough, MA 01719. 800-526-8255 or 508-263-9929. (June '90) [MF#1009]

**Racal InterLan MacConnect NIA310-10BT 🐁🐁🐁½**
This NuBus card provides 10BASE-T Ethernet networking capability. Lacks additional ports. Includes diagnostic software and link-integrity LED. Lifetime warranty. Requires Mac II series. $495. Racal InterLan, 155 Swanson Rd., Boxborough, MA 01719. 800-526-8255 or 508-263-9929. (Sept '91) [MF#1010]

**Radar 🐁🐁🐁🐁**
Radar is network-management software that collects detailed information about connected Macs. Offers rapid performance and good interface. Version 1.0 reviewed. $499. Sonic Systems, Inc., 21211 Rainbow Dr., Cupertino, CA 95014. 408-725-1400. (Oct '91) [MF#1011]

**Send Express 🐁🐁🐁🐁**
Send Express is a complex DA/INIT combination that sends files or Clipboard contents in the background. Version 1.0 reviewed. Version 2.1c shipping. Requires Mac Plus or later and System 6.03 or later. Three users, $79; unlimited users per zone, $179. Gizmo Technologies, P.O. Box 14177, Fremont, CA 94539. 510-623-7899. (Sept '90) [MF#1012]

**SequeLink 🐁🐁🐁🐁**
An application-programming interface, SequeLink provides a faster alternative to Apple's DAL but is difficult to use. Server operating systems supported include VAX/VMS and SCO UNIX/XENIX. Client operating systems supported include the Mac OS, Windows 3.0, and OS/2. Per user, $695; servers, $4,995. TechGnosis, Inc., One Park Pl., 621 N.W. 53rd St., #340, Boca Raton, FL 33487. 800-275-7565 or 407-997-6687. (Jan '91) [MF#1013]

**Shiva EtherGate 🐁🐁🐁½**
This hardware/software router combination includes an Ethernet interface. Besides LocalTalk and dial-up asynchronous links, supports synchronous DDS, ISDN, and T1 links. $1,899. Shiva Corp., One Cambridge Center, Cambridge, MA 02142. 800-458-3550 or 617-252-6300. (Jan '92) [MF#1014]

**Shiva EtherPort IIT 🐁🐁🐁½**
This NuBus card provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port, diagnostic software, and link-integrity LED. Doesn't auto-configure. Requires Mac II series. $299. Shiva Corp., One Cambridge Center, Cambridge, MA 02142. 800-458-3550 or 617-252-6300. (Sept '91) [MF#1015]

**Shiva EtherPort SE/30 🐁🐁🐁**
This Ethernet networking device delivers average performance. Lacks diagnostic software. Requires Mac SE/30. $299. Shiva Corp., One Cambridge Center, Cambridge, MA 02142. 800-458-3550 or 617-252-6300. (June '90) [MF#1016]

**Shiva FastPath 🐁🐁🐁**
This hardware EtherTalk/LocalTalk router supports DECnet. Current software is K-Star 8.0.1. Can handle one LocalTalk and one EtherTalk network. Offers support for TCP/IP, AppleTalk Phase 2, or mixed Phase 1 and Phase 2 networks, but only one LocalTalk port is provided. Version 4 reviewed. Version 5 shipping. $2,799. Shiva Corp., One Cambridge Center, Cambridge, MA 02142. 800-458-3550 or 617-252-6300. (Apr '91) [MF#1017]

**Shiva TeleBridge 🐁🐁🐁🐁**
This WAN router is a stand-alone hardware device that's faster than a software-only solution, but speed is still limited by the modem linked (via TeleBridge) to a LocalTalk network. No EtherTalk interface. $599. Shiva Corp., One Cambridge Center, Cambridge, MA 02142. 800-458-3550 or 617-252-6300. (Jan '92) [MF#1018]

**SoftPC - Entry Level 🐁🐁🐁½**
SoftPC puts a PC XT inside your Mac without making you crack the case to add any coprocessor boards. The DOS emulation is done entirely in the software. Version 1.3 reviewed. Version 2.5 shipping. Requires Mac SE with 68020 accelerator card, SE/30, or II series with 2 MB of RAM and a hard-disk drive. $199.95. Insignia Solutions, 526 Clyde Ave., Mountain View, CA 94043. 415-694-7600. (Nov '88) [MF#1019]

**Sonic Systems Ether TwP/II 🐁🐁🐁🐁**
The Ether TwP/II is a NuBus card that provides 10BASE-T Ethernet networking capability. Includes thicknet AUI port and diagnostic software. Lacks link-integrity LED. Doesn't auto-configure. Requires Mac II series. $199. Sonic Systems, Inc., 21211 Rainbow Dr., Cupertino, CA 95014. 408-725-1400. (Sept '91) [MF# 1020]

**Sonic Systems Ether TwP/LC 🐁🐁🐁🐁½**
This PDS card provides 10BASE-T Ethernet networking capability. Lacks additional ports or link-integrity LED. Provides diagnostic software. FPU socket on board. Requires Mac LC. $199. Sonic Systems, Inc., 21211 Rainbow Dr., Cupertino, CA 95014. 408-725-1400. (Sept '91) [MF#1021]

**Sonic Systems Ether TwP/SE 🐁🐁🐁🐁**
This PDS card provides 10BASE-T Ethernet networking capability. Lacks additional ports or link-integrity LED. Provides diagnostic software. Requires Mac SE/30 or IIsi. $199. Sonic Systems, Inc., 21211 Rainbow Dr., Cupertino, CA 95014. 408-725-1400. (Sept '91) [MF#1022]

**SQL*Net for Macintosh 🐁🐁🐁🐁½**
Easy to use and fast, SQL*Net is an application-programming interface for client/server database access. Server operating systems include IBM MVS and VM, VAX/VMS, UNIX, and OS/2. Version 1.2 shipping. $299 per user; Oracle database for Mac, $699; server, $920 to $13,000. Oracle Corp., 500 Oracle Pkwy., Redwood Shores, CA 94065. 800-345-3267 or 415-506-7000. (Jan '91) [MF# 1023]

**Status*Mac 🐁🐁🐁🐁½**
Status*Mac is network-management software that collects detailed information about connected Macs. Offers thorough, rapid performance and good interface. Version 2.0 reviewed. 25 users, $449; unlimited users, $1,199. ON Technology, Inc., 155 Second St., Cambridge, MA 02141. 617-876-0900. (Oct '91) [MF#1024]

**Technology Works NuBus 10T/Thin/AAUI Ethernet card 🐁🐁🐁🐁**
This NuBus card provides 10BASE-T Ethernet networking capability. Includes BNC and AAUI ports. Lacks diagnostic software and link-integrity LED. Doesn't auto-configure. Lifetime warranty. Requires Mac II series. $429. Technology Works, Inc., 4030 Braker Lane W., Ste. 350, Austin, TX 78759. 800-688-7466 or 512-794-8533. (Sept '91) [MF# 1025]

**Timbuktu 🐁🐁🐁🐁**
Timbuktu is a color-capable screen-sharing program that lets you access networked Macs. Allows your computer to be both host and guest or to hook up to multiple hosts simultaneously. Supports only network connections, not modem connections. Version 4.01 reviewed. Requires Mac Plus or later; requires System 6.04 or later for 24-bit-color support. Per node, $195; quantity discounts available. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Dec '91) ★ '90 Eddy [MF#1026]

**TrafficWatch II 🐁🐁🐁🐁**
This network-administration tool supports either LocalTalk, EtherTalk, or AppleTalk Phase 2. Can create simulated network traffic for analysis and has intuitive interface. $695. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Feb '92) [MF#1027]

**TurboStar 🐁🐁🐁½**
The TurboStar distributes AppleTalk signals to devices on a network and provides network-management and -troubleshooting capabilities. Performance can be poor in complex wiring configurations. Version 1.1 shipping. $1,295. Nuvotech, Inc., 2015 Bridgeway, Sausalito, CA 94965. 800-468-8683 or 415-331-7815. (May '90) [MF#1028]

**WordPerfect Office 🐁🐁🐁🐁**
This powerful office-automation package includes a networked group calendar, forms maker, file manager, and mail system. Compatible with PC version. This

multiuser program has ambitious scope, but interface needs minor tweaking. Group scheduling and workgroup computing features are real benefits. User-customizable features are extensive. No remote dial-up utility. Version 3.0 reviewed. Version 3.02 shipping. Requires Mac Plus or later, System 6.05 or later, a hard-disk drive, and an AppleTalk network. $149; 20 users, $1,295; 100 users, $5,995. WordPerfect Corp., 1555 N. Technology Way, Orem, UT 84057. 800-451-5151 or 801-225-5000. (July '92) [MF#1029]

## ORGANIZATIONAL TOOLS

**Acta 7 🐭🐭🐭🐭½**
Acta 7 is an outliner application. Also comes with the Acta DA. Smart Paste lets you paste material from other applications into Acta outline format. Version 1.0 reviewed. Version 1.03 shipping. Requires Mac Plus or later. $149. Symmetry Software Corp., 8603 E. Royal Palm Rd., Ste. 110, Scottsdale, AZ 85258. 800-624-2485 or 602-998-9106. (Aug '89) ★ '89 Eddy [MF#1030]

**Aspects 🐭🐭🐭🐭**
Aspects was the first Mac groupware product. Like multiuser database programs, Aspects provides several users with simultaneous access to multiple documents (limited by available RAM). Word-processing, drawing, and painting modes are provided, but there are no database or spreadsheet modes, outliner, or color support. Version 1.0 reviewed. Version 1.02 shipping. Requires Mac Plus or later; hard-disk drive recommended. $299; 5 users, $895; 10 users, $1,295; 100 users, $7,995. Group Technologies, 1408 N. Fillmore St., Ste. 10, Arlington, VA 22201. 800-476-8781 or 703-528-1555. (June '91) ★ '90 Eddy [MF#1031]

**ClarisWorks 🐭🐭🐭🐭½**
ClarisWorks is a superbly designed integrated-software package. Clean, accessible interface. Includes five modules for word processing, graphics, database management, spreadsheets (with charting), and telecommunications — their level of integration makes ClarisWorks a winner. Perfect for a PowerBook. Version 1.0 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $299. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (June '92) ★ '91 Eddy [MF# 1032]

**Client 🐭🐭🐭**
Client is an affordable, highly customizable contact manager in the form of a HyperCard stack. Great for salespeople on a budget, especially if they're willing to learn a little HyperCard programming. Doesn't have automatic in-box function to display a day's scheduled activities. No built-in mail-merge. Version 2.0 reviewed. Requires HyperCard 2.0 or later. $195. Trendware Corp., P.O. Box 2285, Huntington, CT 06484. 203-926-1116. (Feb '92) [MF#1033]

**Colleague 2 🐭🐭🐭🐭½**
Colleague 2 is a slick, attractive contact manager that's perfectly suited for professionals in graphic design, commercial photography, and advertising. Includes a run-time version of 4th Dimension. Lacks strategic-planning capability and automated follow-up. Version 2.92 reviewed. Requires Mac Plus or higher with 2 MB of RAM and a hard-disk drive. $395; each additional user, $175. Colleague Business Software, Inc., 10000 Research Blvd., Ste. 210, Austin, TX 78759. 800-926-9965 or 512-345-9964. (Feb '92) [MF#1034]

**Contact Ease 🐭🐭🐭🐭½**
This contact manager has a deceptively simple interface and handles automated contact-management well. Sophisticated and fast. Built on the Omnis 5 database-management program. No color support and can't change envelope font. Version 1.22 reviewed. Requires Mac Plus or higher with 2 MB of RAM and a hard-disk drive. Up to 5 users, $395; 20 users, $775. WestWare, Inc., 10148 Diamond Head Ct., Spring Valley, CA 92077. 800-869-0871 or 619-660-0356. (Feb '92) [MF#1035]

**Control Classic 🐭🐭🐭🐭½**
This contact manager, based on 4th Dimension, is a simplified version of Control II, a heavy-duty system for sales-lead tracking, order entry, and invoicing. Control Classic concentrates on lead tracking and provides a clean interface, good automated planning, and a nice balance of word-processing and mail-merge features. Version 1.1 reviewed. Requires Mac Plus or higher with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $595; $150 per additional user. Diamante Software, 11651 Plano Rd., Ste. 160, Dallas, TX 75243. 800-223-2165 or 214-341-6711. (Feb '92) [MF# 1036]

**Desk 🐭🐭🐭½**
Desk is a collection of seven powerful DAs: DeskPaint, DeskDraw, DeskWrite, DeskSecretary (appointment calendar), DeskCom (modem control), DeskCalc, and DeskFile (minidatabase program). Version 1.0 reviewed. Version 3.07 shipping. Requires Mac Plus or later; DeskPaint requires a color display system, 2 MB of RAM, and a hard-disk drive. $399.95. Zedcor, 4500 E. Speedway, Ste. 22, Tucson, AZ 85712. 800-482-4567 or 602-881-8101. (Jan '91) [MF# 1037]

**DiagramMaker 🐭🐭🐭🐭**
DiagramMaker is a multipurpose object-linking program. Forms a network of custom-designed objects with connecting points at the centers, corners, or centers of sides. Customizes organization charts from text outlines. Version 1.1 reviewed. Version 2.1 shipping. Requires Mac Plus or later and System 6.03 or later. $295. Action Software, 1507 E. Franklin St., Ste. 122, Chapel Hill, NC 27514. 800-826-0550. (Jan '90) [MF#1038]

**Fair Witness 🐭🐭🐭🐭**
Fair Witness provides a striking combination of outliner, database-manager, and spreadsheet-program features. An invaluable tool for capturing, organizing, and following through on project ideas. Version 1.0 reviewed. Version 1.1 shipping. Requires System 6.03 or later and a hard-disk drive. $495. Chena Software, Inc., 905 Harrison St., Allentown, PA 18103. 215-770-1210. (Jan '92) ★ '91 Eddy [MF#1039]

**GreatWorks 🐭🐭🐭🐭**
This affordable package includes eight applications: a good word processor, an outliner, two graphics modules, telecommunications software, a database program, and a spreadsheet program with charting. Although the separate modules work well and are easily navigated, the level of automatic integration among them is almost nonexistent. Version 2.0 reviewed. Requires Mac Plus or later and System 6.03 or later; hard-disk drive recommended. $299. Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014. 800-441-7234 or 408-253-9600. (June '92) [MF#1040]

**HandiWorks 🐭🐭**
HandiWorks is a simple but frustrating integrated-software package. Awkward interface. Limited feature set concentrates on basic page-layout functions. Version 1.0 reviewed. Requires Mac Plus or later and System 6.03 or later. $175. MacVONK-USA, Inc., 313 Iona Ave., Narberth, PA 19072. 215-660-0606. (June '92) [MF# 1041]

**IdeaFisher 🐭🐭🐭🐭**
IdeaFisher is a thought processor that's based on a 7-MB database of words, phrases, clichés, and titles. Cross-referenced and indexed in several ways for basic brainstorming. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later and a hard-disk drive. $595. Fisher Idea Systems, Inc., 2222 Martin St., Ste. 110, Irvine, CA 92715. 800-289-4332 or 714-474-8111. (May '90) [MF#1042]

**Inspiration 🐭🐭🐭🐭**
Inspiration is a useful and flexible idea processor. Allows creative, unstructured brainstorming with many options for project planning, organization charts, flow charts, simple word processing, and even storyboarding for video and film. Version 2.02 reviewed. Version 3.0.1 shipping. Requires Mac Plus or later and System 4.2 or later. $295. Ceres Software, Inc., 2920 S.W. Dolph Ct., Ste. #3, Portland, OR 97219. 800-877-4292 or 503-245-9011. (June '90) [MF#1043]

**Market Master 🐭🐭🐭½**
This contact manager, based on Double Helix, takes a highly automated approach to developing sales. Handles contacts with a highly customizable IF/THEN multiple-choice system that's time-consuming to implement but streamlines interaction with contacts. Manages form letters, envelopes, and labels, but has weak mail-merge capability. Version 3.0 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $395; four users, $595; multiuser add-on, $495. Breakthrough Productions, 210 Park Ave., Nevada City, CA 95959. 916-265-0911. (Feb '92) [MF# 1044]

**Org Plus for Macintosh 🐭🐭🐭🐭½**
Org Plus creates hierarchical organization charts quickly, intuitively, and with a surprising variety of styles and formats. Nearly all the graphics drudgery required in chart making is automated by this easy-to-use program. This top-quality Mac program can exchange files with its DOS counterpart. Version 1.0 reviewed. Requires Mac Plus or later, System 4.1 or later, and a hard-disk drive. $195. Banner Blue, P.O. Box 7865, Fremont, CA 94537. 510-794-6850. (May '91) [MF# 1045]

**QPID 🐭🐭🐭🐭**
QPID is a contact manager, based on 4th Dimension, that's ideal for organizations that need a single program to track prospects, clients, employees, and jobs. Automatically presents daily scheduled events when launched. Version 1.4 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $695; 5-user pack, $2,459. GT Omnicom, Inc., 481 Queen St. E., Toronto, Ontario M5A 1T9 Canada. 416-365-1436. (Feb '92) [MF#1046]

**Set Clock 🐭🐭🐭🐭½**
Set Clock makes a ten-second phone call to Leitch Video's master-clock driver (near the East Coast) and then sets your Macintosh's internal clock to within one-second accuracy. Version 1.8.1 shipping. Requires 300-bps or faster modem. Free from on-line services. Leitch Video International, Inc., 10 Dyas Rd., Don Mills, Ontario M3B 1V5 Canada. 416-445-9640. (Nov '89) [MF#1047]

**SuperClock! 🐭🐭🐭🐭🐭**
SuperClock! is a superb on-screen time indicator or clock. Has excellent timer and alarm functions.

[redacted]

Perfect for PowerBooks. Version 3.9 shipping. Requires System 4.1 or later. Free from on-line services. Steve Christensen, CompuServe 76174,1712; AppleLink STEVEC. (Nov '89) [MF# 1048]

**TeleMagic 🐭🐭🐭🐭½**
TeleMagic is a speedy, flexible contact manager based on the powerful FoxBASE+ database manager. Excellent, customizable search-and-sort features. Uses a simple notepad interface that automatically tracks date and time of contacts, including those telephoned by the auto-dial feature. Plain interface and weak DTP features, but this program is for sales pros who like to drive fast. Version 10+ reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $495; multiuser network version, $9,995. Remote Control International, 5928 Pascal Ct., Carlsbad, CA 92008. 800-992-9952 or 619-431-4000. (Feb '92) [MF#1049]

**Works 🐭🐭🐭🐭½**
Works is an easy-to-use combination of word processor, mail-merge system, spreadsheet program, and telecommunications software. Works' spreadsheet component is a basic system that can perform most business analyses. The word-processing module is adequate for simple office needs. Version 2.0a reviewed. Requires Mac Plus or later. $249. Microsoft Corp., One Microsoft Way, Redmond, WA 98052. 800-426-9400 or 206-882-8080. (Jan '91) ★ '86 Eddy [MF# 1050]

**WorksPlus Command 🐭🐭🐭🐭**
WorksPlus Command lets you build and define macros for all Works modules. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later and Microsoft Works. $149.95. Lundeen & Associates, 1000 Atlantic Ave., Alameda, CA 94501. 800-233-6851 or 510-769-7701. (May '88) [MF#1051]

### ORGANIZATIONAL TOOLS/ PERSONAL-INFO MANAGERS

**Address Book Plus 🐭🐭🐭🐭**
This handy name-and-address manager works easily as application, or included DA allows file access from other programs. Good sorting and import/export abilities. No network capability. Version 2.0 reviewed. Requires System 6.03 or later. $99.95; upgrade, $29.95. Power Up Software Corp., 2929 Campus Dr., San Mateo, CA 94403. 800-851-2917 or 415-345-5900. (Feb '92) [MF#1052]

**AgentDA 🐭🐭🐭½**
AgentDA is an appointment-and-reminder utility that handles most scheduling tasks quite well. The DA provides a handy find function for locating specific appointments. Unable to set up recurring appointments automatically. Version 2.0 reviewed. Requires Mac Plus or later. $119. Team Building Technologies, 836 Bloomfield Ave., Montreal, Quebec H2V 3S6 Canada. 514-278-3010. (Mar '92) [MF#1053]

**Alarming Events 🐭🐭🐭½**
This DA provides an integrated electronic appointment book. Its interface resembles a monthly calendar, where the dates act as buttons and open up to your daily schedule; a five-day view is also available. It can provide advance warning of upcoming events, and you can designate recurring events. Version 1.0 reviewed. Version 1.03 shipping. Requires Mac Plus or later, System 6.04 or later, and a hard-disk drive. $129.95. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (Feb '91) [MF#1054]

**C•A•T III 🐭🐭🐭**
C•A•T is a personal-information manager that tracks contacts, activities, and time. Features include capacity for an unlimited number of contacts for each account with 16 pages of notes, letter writing, drawing, simple math calculation, and even dialing the phone. Difficult to use. Version 1.0 reviewed. Requires Mac Plus or later. $495. Chang Laboratories, Inc., 3350 Scott Blvd., Bldg. 25, Santa Clara, CA 95054. 408-727-8096. (Oct '90) [MF#1055]

**CalenDAr 🐭🐭🐭🐭**
CalenDAr is a reliable, innovative DA that manages appointments and important reminders. Offers a unified interface and excellent control of recorded or system sounds. Version 1.0 reviewed. Version 1.13 shipping. Requires System 6.07 or later. $60. Psybron Systems, Inc., P.O. Box 431, Charleston, WV 25322. 800-866-4260 or 304-340-4260. (June '91) [MF#1056]

**CalendarMaker 🐭🐭🐭**
This utility creates a variety of calendars with excellent printing routines. Version 3.0 reviewed. Version 3.01 shipping. Requires Mac Plus or later and System 4.2 or later; hard-disk drive recommended. $49.95. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (Sept '89) [MF#1057]

**DayMaker 🐭🐭🐭½**
DayMaker is a powerful personal-scheduling program with a clumsy interface you'll love to hate. Reliable and offers nearly all the features needed for flexible time-management. Has many options for alarms, reminders, and to-do lists. Includes simple address book and phone directory with auto-dial support. Unable to automatically schedule repeating events and has unnecessarily complex routines for changing or deleting information. Version 1.01 reviewed. Requires Mac Plus or later. $99. Pastel Development Corp., 113 Spring St., New York, NY 10012. 212-941-7500. (May '92) [MF# 1058]

**Dynodex 🐭🐭🐭🐭½**
Dynodex is a fast, powerful name-and-address manager. Complex, multifield data-entry screen is extensively customizable. Good phone-dialing features. Includes FiloFax-binder-sized paper for printouts. Other binder-paper formats are available. Imports data from tab- or comma-delimited text files and includes DA to access data when you're using other applications. No network capability. Version 2.0 reviewed. Version 2.07 shipping. Requires Mac Plus or later and PostScript or QuickDraw printer. $125. Portfolio Systems, Inc., 10062 Miller Ave., Ste. 201, Cupertino, CA 95014. 800-729-3966 or 408-252-0420. (Feb '92) [MF#1059]

**For the Record 🐭🐭🐭🐭½**
For the Record is a database program designed for legal, financial, and personal records. Allows password locking for screens containing sensitive personal data. Version 2.0 reviewed. Version 2.06 shipping. Requires Mac Plus or later and System 4.1 or later. $59.95. Nolo Press, 950 Parker St., Berkeley, CA 94710. 800-992-6656 or 510-549-1976. (June '91) [MF#1060]

**Intouch 🐭🐭🐭**
Intouch is a simple DA that keeps track of names, addresses, telephone numbers, and personal notes. Printing options include any typeface that fits into your layout, including bar codes and facing identification marks; embedded graphics for any of ten return-address selections; and special messages in the lower-left corner of envelopes. Optional Intouch Network program is a fast, password-protected server application that runs on any networked Mac. Version 1.1 reviewed. Version 1.18 shipping. Requires Mac Plus or later and System 6.03 or later; hard-disk drive recommended. $69.95; Intouch Network, $199.95. Advanced Software, Inc., 1095 E. Duane Ave., Ste. 103, Sunnyvale, CA 94086. 800-346-5392 or 408-733-0745. (Apr '92) [MF#1061]

**Meeting Maker 🐭🐭🐭🐭**
This multiuser group-scheduling package is fully featured. Includes basic messaging system, flexible control of recurring meetings, and useful printing formats for group schedules. Version 1.0 reviewed. Version 1.5 shipping. Requires Mac Plus or later. Five users, $495; ten users, $895. ON Technology, Inc., 155 Second St., Cambridge, MA 02141. 617-876-0900. (Nov '91) [MF#1062]

**Now Up-To-Date 🐭🐭🐭🐭½**
Now Up-To-Date scores high as a personal and workgroup appointment scheduler. Full-featured but elegantly simple, with good network performance and a superb interface. Doesn't require you to connect to a server for personal scheduling, but lets you save group appointments into your calendar. Lacks warning device for schedule conflicts. Version 1.1 reviewed. Requires Mac Plus or later and System 6.03 or later. $99; five-user pack, $399; ten-user pack, $599. Now Software, Inc., 319 S.W. Washington St., 11th Floor, Portland, OR 97204. 800-237-3611 or 503-274-2800. (July '92) [MF#1063]

**QuickDEX II 🐭🐭🐭½**
This easy-to-use, intuitive name-and-address manager's interface resembles cards in a deck, with text entry permitted into fields in any order. A single card (record) can hold as much text as RAM will allow. Very fast. Lacks network capability. Version 2.3 reviewed. Requires Mac Plus or later; hard-disk drive recommended. $60. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908. 800-359-4920 or 408-484-9228. (Feb '92) [MF#1064]

**Rendezvous 🐭🐭🐭**
This classy personal organizer has excellent printing abilities and useful and well-designed calendar, planner, diary, and to-do-list forms. Version 2.5 reviewed. Version 3.5/Plus shipping. Requires Mac Plus or later and System 6.03 or later. $200. PMC Telesystems, Inc., P.O. Box 5127, Vancouver, British Columbia V6B 4A9, Canada. 800-667-0456 or 604-255-9949. (Feb '90) [MF# 1065]

**Reunion 🐭🐭🐭🐭½**
This HyperCard stack is a good genealogy program. Supports GEDCOM. Includes space for adding digitized photos, an index, and a birthday file. Easy to use. Includes HyperCard. Version 1.5 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 6.05 or later. $169. Leister Productions, P.O. Box 289, Mechanicsburg, PA 17055. 717-697-1378. (Oct '90) [MF#1066]

**Smart Alarms and Appointment Diary 🐭🐭🐭**
Smart Alarms and Appointment Diary are two bundled DAs that provide separate electronic appointment books. Smart Alarms lets you set simple, reliable reminders for events (including recurrent projects), and these reminders pop up no matter what application you're using. Appointment Diary is equivalent to a calendar, with dates that act as buttons and open up to a daily schedule. A networked, multiuser version of Appointment Diary is available. Version 3.0/3.1 reviewed. Version 3.1 Plus Pack shipping. Requires Mac Plus or later. $125; multiuser licenses

available. JAM Software, P.O. Box 4036, Meriden, CT 06450. 203-630-0055. (Feb '91) [MF# 1067]

**TouchBASE 🐭🐭🐭🐭½**
TouchBASE is a fast DA that provides sophisticated multicriteria search capabilities in personal-address-book databases. Supports phone dialing. Has wide range of printing options and templates for labels, envelopes, and double-sided address books. Works well in networked multiuser mode. Version 2.0 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive; network use requires dedicated server. $125 per user. After Hours Software, 5636 Van Nuys Blvd., Ste. B, Van Nuys, CA 91401. 818-780-2220. (Apr '92) [MF#1068]

**WillMaker 🐭🐭🐭🐭**
WillMaker is a simple, valuable program for creating wills. Not elegant but does the job reliably. It presents a series of straightforward questions for you to answer or gives full information screens that explain legal issues. Its excellent manual covers the software, wills, estate planning, and professional advice. Version 4.0 reviewed. Requires Mac Plus or later and System 4.1 or later. $69.95. Nolo Press, 950 Parker St., Berkeley, CA 94710. 800-992-6656 or 510-549-1976. (Apr '91) [MF# 1069]

### ORGANIZATIONAL TOOLS/ PROJECT PLANNERS & ORGANIZERS

**AEC Information Manager 🐭🐭🐭🐭**
This dedicated database program for managing project information is designed for use with MacProject II or Micro Planner. Helps manage data needed to make decisions and monitor status. Alarm keeps track of critical dates. Version 1.21 reviewed. Version 1.22 shipping. Requires Mac Plus or later and a hard-disk drive. $695. AEC Software, 22611 Markey Ct., Bldg. 113, Sterling, VA 22170. 703-450-1980. (Oct '89) [MF# 1070]

**Business Plan Toolkit 🐭🐭🐭🐭½**
This integrated set of Excel macros and templates with HyperCard-based text makes creating business plans and forecasts relatively easy. Excellent manual. Version 4.0 shipping. Requires Mac 512K or later and System 4.2 or later. $149.95. Palo Alto Software, 260 Sheridan Ave., Ste. 219, Palo Alto, CA 94306. 800-229-7526 or 415-325-3190. (Sept '89) [MF#1071]

**FastTrack Schedule 🐭🐭🐭🐭**
FastTrack Schedule is a flexible Gantt-based project scheduler that uses a hierarchical outline format. Provides a high degree of functionality and excellent on-screen and printed-graphics abilities. Lacks spreadsheet and graphing tools as well as capabilities for reporting slipped start or completion dates. Version 1.5 reviewed. Requires Macintosh Plus or later and a hard-disk drive. $235. AEC Software, 22611 Markey Ct., Bldg. 113, Sterling, VA 22170. 703-450-1980. (June '91) [MF# 1072]

**FlowMaster 🐭🐭🐭🐭½**
FlowMaster is a flowcharting package that charts your ad dollars in print, TV, billboard, and other media. Analyzes costs/benefits of a campaign in innovative terms. Includes bar-chart and tabular output as well as a color-drawing environment for touching up charts. Version 2.01 reviewed. Version 2.5i shipping. Requires Mac Plus or later and a hard-disk drive. $1,200 annual license fee. Telmar Information Services Corp., 902 Broadway, New York, NY 10010. 212-460-9000. (June '90) [MF#1073]

**ithink 🐭🐭🐭🐭½**
Formerly named STELLA Software for Business, ithink is a simulation tool for modeling complex business systems. Version STELLA 1.0 reviewed. Version 2.01 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.04 or later, and a hard-disk drive. $695; volume and academic discounts available. High Performance Systems, Inc., 45 Lyme Rd., Ste. 300, Hanover, NH 03755. 800-332-1202 or 603-643-9636. (June '88) [MF#1074]

**KeyPlan 🐭🐭🐭🐭**
This outliner/project planner lacks some powerful tools but is easy to use. Flexible, fast, and suited for managers who need quick project-planning help. Version 1.0 reviewed. Version 1.06 shipping. Requires Mac Plus or later and System 6.03 or later. $395. MacVONK-USA, Inc., 313 Iona Ave., Narberth, PA 19072. 215-660-0606. (Apr '90) ★ '89 Eddy [MF# 1075]

**MacFlow 🐭🐭🐭🐭🐭**
MacFlow is a specialized flowchart tool. Creates a variety of general business diagrams, including decision trees and project-schedule charts. Top-level chart objects work like buttons in HyperCard, revealing underlying details or even launching separate applications. Version 3.5 reviewed. Version 3.7 shipping. Requires Mac Plus or later and System 6.03 or later. $345. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. 818-991-6540. (July '91) [MF#1076]

**MacProject II 🐭🐭🐭🐭**
MacProject II is a well-executed PERT and CPM project-management system with time and expense reporting. Can manage projects and produce management reports. Version 1.1 reviewed. Version 2.5 shipping. Requires Mac Plus or later. $499. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (Oct '89) [MF#1077]

**MacSchedule Plus 🐭🐭🐭🐭**
MacSchedule Plus is a powerful Gantt-based project-management and outliner system for advanced Gantt users. Offers project-time scaling. Limited color, graphics, and printing capabilities. Useful spreadsheet and graphing tools. Tracks slipped start or completion dates. Can calculate financial information and cost schedules. Version 1.0 reviewed. Requires Mac Plus or later and System 6.03 or later. $345. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. 818-991-6540. (June '91) [MF#1078]

**MetaDesign 🐭🐭🐭🐭½**
MetaDesign is a powerful organizational tool. Graphically depicts relationships among systems. Complex, detailed program. Version 1.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later. $250 direct. Meta Software, 125 Cambridge Park Dr., Cambridge, MA 02140. 800-227-4106 or 617-576-6920. (Apr '88) [MF# 1079]

**Micro Planner and Project Exchange 🐭🐭🐭🐭½**
Micro Planner and Project Exchange provide full PERT and CPM implementations with advanced resource leveling and management reporting. Output can be used easily for management presentations. Latest versions are called Manager and KeyPlan. Micro Planner version 6.1f, Project Exchange version 1.08 reviewed. Manager version 1.03, KeyPlan version 2.0 shipping. Requires Mac Plus or later and a hard-disk drive. Micro Planner Manager, $549; KeyPlan (updates Project Exchange), $249. Micro Planning International, 655 Redwood Hwy., Ste. 311, Mill Valley, CA 94941. 303-757-2216. (Oct '89) [MF# 1080]

**Microsoft Project 🐭🐭🐭½**
This project-management tool is powerful and flexible but suffers from its DOS heritage. Provides excellent control of custom reports, scheduling algorithms, and PERT or Gantt charts. Has frustrating nonstandard interface and relies heavily on special codes and memorizing file pathnames. This is a good choice only if you need to blend into a mostly PC office. Version 1.1 reviewed. Requires Mac Plus or later and a hard-disk drive. $695. Microsoft Corp., One Microsoft Way, Redmond, WA 98052. 800-426-9400 or 206-882-8080. (Jan '92) [MF#1081]

**PERT & Critical Path Techniques 🐭🐭🐭½**
PERT & Critical Path Techniques is a technically sophisticated project-management system. Has full Gantt and CPM implementation, including all second-order slack and timing calculations. Doesn't make good use of the Mac interface. Version 4.0 reviewed. Version 6.0 shipping. Requires Macintosh Plus or later. $145 direct. Lionheart Press, Inc., P.O. Box 379, Alburg, VT 05440. 514-933-4918. (Oct '89) [MF# 1082]

**Project Scheduler 🐭🐭🐭½**
This project-management software is frustratingly nonintuitive, but it has several advantages for full-time project planners (especially if they need WBS or OBS codes). A variety of time lines and reports are possible. Version 4 reviewed. Version 5 shipping. $695. Scitor, 393 Vintage Park Dr., #140, Foster City, CA 94404. 415-570-7700. (Jan '91) [MF# 1083]

**Shift Worker 🐭🐭🐭**
Shift Worker is a quick, accurate program for organizing complicated work-shift schedules. Uses expert-system logic well but has a relatively crude interface. Data entry is simple. Handles a maximum of ten work shifts, defined by start time, meal breaks, and end time. Adequate for small businesses. Version 1.0 reviewed. Requires Mac Plus or later and a hard-disk drive. $595. Expert Systems, Inc., 2616 Quebec Ave., Melbourne, FL 32935. 407-242-0140. (June '92) [MF#1084]

**Swing Shift 🐭🐭🐭**
Swing Shift is a powerful HyperCard-based system for organizing complicated work-shift schedules. Has busy, complicated interface that obscures its many useful features. Handles as many as 250 employees and as many as 150 work shifts. Allows either automated or manual scheduling, and alerts user to schedule conflicts. Adequate for small businesses. Version 2.0 reviewed. Requires Mac Plus or later with 2 MB of RAM, HyperCard 2.0 or later, and a hard-disk drive. $595. Computed Designs, Inc., P.O. Box 802, Temple City, CA 91780. 818-287-5496. (June '92) [MF#1085]

**TopDown 🐭🐭🐭🐭½**
TopDown is a strong flowchart and organization-chart tool with a choice of connection modes for each individual line. Can generate text-based reports with support for color output. Comes with complete set of ANSI flowchart symbols, Yourdon-style data-flow diagram symbols, and a custom set of symbols that combines business icons with text boxes. Good choice for systems analysts, information consultants, and general business planners. Version 3.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later and System 6.04 or later; hard-disk drive recommended. $345. Kaetron Software Corp., 12777 Jones Rd., Ste. 445, Houston, TX 77070. 713-890-3434. (Jan '92) [MF#1086]

## OUTPUT DEVICES

**Apple LaserWriter IIf 🐭🐭🐭🐭**
This black-and-white 300-dpi PostScript laser printer is faster and cheaper than its predecessor, the IINTX. Supports PostScript Level 2. Based on Canon SX laser engine. Adding 4 MB of RAM enables PhotoGrade, Apple's excellent technology for improved printing of halftone photos. Includes LocalTalk, serial, and parallel ports. SCSI hard-disk drive can be connected for type-font storage. Equipped with one 200-sheet paper tray. $3,599. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Feb '92) [MF#1087]

**Apple LaserWriter IIg 🐭🐭🐭🐭**
The LaserWriter IIg is a black-and-white, 300-dpi, PostScript laser printer that's fast and includes PhotoGrade, Apple's excellent technology for improved printing of halftone photos. Supports PostScript Level 2. Based on Canon SX laser engine. Includes Ethernet, LocalTalk, serial, and parallel ports. SCSI hard-disk drive can be connected for type-font storage. Equipped with one 200-sheet paper tray. $4,599. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Feb '92) ★ '91 Eddy [MF# 1088]

**Apple LaserWriter IINTX 🐭🐭🐭🐭**
Until the arrival of Apple's PostScript Level 2 printers, this machine was one of the best choices for price and performance. Memory is expandable to 12 MB, and it can accommodate a SCSI hard-disk drive for font storage. Comes with toner cartridge and envelope cassette but lacks paper-feed options. $4,999. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Sept '91) [MF#1089]

**Apple Personal LaserWriter LS 🐭🐭🐭🐭**
The Personal LaserWriter LS is a 300-dpi laser printer that does not support PostScript. Slow, and no PostScript upgrade is possible. Easy-to-install consumables. Comes with 13 TrueType fonts. Output quality is excellent with Adobe Type Manager or TrueType fonts. $1,199. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Sept '91) [MF#1090]

**Apple Personal LaserWriter NT 🐭🐭🐭🐭**
This PostScript personal laser printer is slow with complex graphics files but is easy to set up. The toner and drum come in a single sealed cartridge. Based on a Canon laser engine, has 37 built-in Adobe fonts, and has a 250-sheet paper tray. $2,599. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Mar '91) [MF#1091]

**Apple StyleWriter 🐭🐭🐭🐭**
The StyleWriter is a compact personal inkjet printer. It's slow and cumbersome to set up, but its 360-dpi output is excellent. Includes 13 TrueType fonts. $399. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Sept '91) [MF#1092]

**CoStar LabelWriter II 🐭🐭🐭🐭**
The LabelWriter II has a stationary thermal print head that produces text or graphics at 138-dpi resolution on 1.125-x-3.5-inch standard 4150 labels. Included DA software is fast and easy to use and supplies a powerful database engine for names and addresses. Optional AppleTalk Network Box lets you share the printer with other networked Macs. Version 1.01 reviewed. Version 1.02B1 shipping. Requires Mac Plus or later. $249; AppleTalk Network Box, $199. CoStar Corp., 22 Bridge St., Greenwich, CT 06830. 800-426-7827 or 203-661-9700. (Feb '92) [MF#1093]

**Dataproducts LZR1260ess 🐭🐭🐭🐭½**
This PostScript laser printer is one of the fastest printers for text and spreadsheets. Versatile, feature-laden and durable and has good paper-handling capability. Bulky. Comes with one 250-page paper tray. A 20-MB external hard-disk drive is bundled for font storage. $5,995. Dataproducts Corp., 6219 DeSoto Ave., Woodland Hills, CA 91365. 818-887-8000. (Sept '91) [MF#1094]

**Dataproducts LZR1260i 🐭🐭🐭🐭½**
This PostScript laser printer is one of the fastest printers for text and spreadsheets. Versatile, feature-laden and durable and has good paper-handling capability. Comes with one 250-page paper tray. No SCSI port is provided for attaching a hard-disk drive. $4,995. Dataproducts Corp., 6219 DeSoto Ave., Woodland Hills, CA 91365. 818-887-8000. (Sept '91) [MF# 1095]

**Dayna EtherPrint 🐭🐭🐭🐭🐭**
The EtherPrint is not an EtherTalk/LocalTalk router, but it lets LaserWriters connected on AppleTalk act like Ethernet devices. Has Ethernet and LocalTalk ports. Version 1.5 ROM reviewed. Version 1.6 shipping. Requires LocalTalk-compatible printer. $499. Dayna Communications, Inc., 50 S. Main St., Salt Lake City, UT 84144. 801-531-0600. (Apr '91) ★ '90 Eddy [MF#1096]

**Fujitsu RX-7100PS 🐭🐭🐭**
This PostScript personal laser printer comes with a dual-bin paper tray. The RX-7100PS uses a Fujitsu LED engine, comes with a DB-9 LocalTalk connector, and has 35 built-in Adobe fonts. Two paper trays hold 150 pages each. $3,190. Fujitsu America, Inc., 2904 Orchard Parkway, San Jose, CA 95134. 800-626-4686 or 408-432-1300. (Mar '91) [MF#1097]

**GCC Business LaserPrinter II 🐭🐭🐭½**
This true Adobe PostScript printer has a low price. Based on an Okidata LED engine. Its SCSI port lets you attach a hard-disk drive for font storage. Speed is good (four pages per minute). Bundled with QuickEnvelope. Has 35 built-in Adobe fonts and a 200-sheet paper tray. $1,999 direct. GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 800-422-7777 or 617-890-0880. (Mar '91) [MF#1098]

**GCC Business LaserPrinter IIS 🐭🐭🐭🐭**
This low-cost PostScript printer lets you attach a SCSI hard-disk drive. Bundled with QuickEnvelope. Uses an Okidata LED engine and comes with two 200-sheet paper trays. $2,899 direct. GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 800-422-7777 or 617-890-0880. (Sept '91) [MF#1099]

**GCC Personal LaserPrinter II 🐭🐭🐭🐭½**
The PLP II is a bargain-priced 300-dpi laser printer. Slow performance but excellent image quality. Upgradable to PostScript. Comes with QuickEnvelope, Adobe Type 1 fonts, and Adobe Type Manager. Requires Mac Plus or later and a hard-disk drive. $999 direct; PostScript upgrade, $799. GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 800-422-7777 or 617-890-0880. (Sept '91) ★ '89 Eddy [MF#1100]

**GCC Personal LaserPrinter IIS 🐭🐭🐭🐭½**
This fast 300-dpi printer has high image quality. Setup and consumables replacement are challenging. Upgradable to PostScript. Comes with QuickEnvelope, Adobe Type 1 fonts, and Adobe Type Manager. Requires Mac Plus or later and a hard-disk drive. $1,499 direct; PostScript upgrade, $799. GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 800-422-7777 or 617-890-0880. (Sept '91) ★ '89 Eddy [MF#1101]

**GCC Technologies WriteImpact 🐭🐭🐭🐭**
The WriteImpact is a near-letter-quality dot-matrix printer. The driver features include 25-to-400-percent enlargement and reduction, smoothing, print preview, and kerning. Uses special Bitstream fonts that tend to be large. Also works with Adobe Type Manager. Performance is very good. Version 1.01 (driver) shipping. Requires Mac Plus or later and a hard-disk drive. $599 direct. GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 800-422-7777 or 617-890-0880. (June '90) [MF#1102]

**GCC WriteMove 🐭🐭🐭½**
The WriteMove is one of the smallest, lightest Mac-compatible inkjet printers. Slow. Produces resolutions of up to 192 dpi. It weighs 3 pounds and runs on batteries or AC. Comes with five Bitstream fonts. Print quality varies, depending on paper and ink used. Limited printable area. Bundled with QuickEnvelope and QuickSpool II. Requires Mac Plus or later and a hard-disk drive. $499 direct. GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 800-422-7777 or 617-890-0880. (Sept '91) [MF#1103]

**General Parametrics Spectra*Star 430 🐭🐭🐭🐭**
The Spectra*Star 430 is a 300-dpi thermal-wax-transfer color printer with excellent output. Uses PipeLine's PowerPage PostScript clone. Options include slide printer and internal hard-disk drive. $6,995. General Parametrics Corp., 1250 Ninth St., Berkeley, CA 94710. 800-223-0999 or 510-524-3950. (May '92) [MF#1104]

**Hewlett-Packard DeskWriter 🐭🐭🐭🐭½**
The HP DeskWriter is a compact, portable, relatively fast inkjet printer. Its 300-dpi black-and-white output can't match laser printers' output at the same resolution. Networkable via LocalTalk. Good manual. Includes 13 Agfa Compugraphic fonts. $599. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (Sept '91) [MF#1105]

**Hewlett-Packard DeskWriter C 🐭🐭🐭🐭**
This affordable 300-dpi color inkjet printer provides good image quality. Can be slow for complex color layouts, because Mac does all imaging and spooling. No built-in PostScript support. Easy setup, but switching cartridges (for either black-and-white or color modes) complicates use when alternating between text-only and color print jobs. Full-page color images leave plain paper damp and wrinkled; special coated papers for inkjet printers provide better color and more-stable images. Requires Mac with 4 MB of RAM and a hard-disk drive. $1,095. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (May '92) [MF#1106]

**Hewlett-Packard LaserJet III 🐭🐭**
The LaserJet III is a slow black-and-white 300-dpi PostScript laser printer. Based on Canon SX laser engine. Includes AppleTalk, serial, and parallel ports. Equipped with one 200-sheet paper tray. $3,395 with AppleTalk interface

# It'll remind yo
# a Macintosh

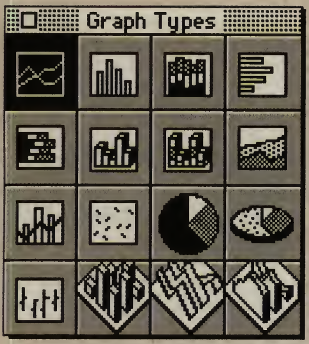
One look at this Lotus® spreadsheet, and it will all come back to you. All those feelings of power and control that surfaced when you first sat down in front of a Mac.®

You see, this isn't just another version of Lotus 1-2-3.® It's a spreadsheet that really grabs hold of the full computing power of Macintosh.® So everything you've come to love about Mac computing is now available in 1-2-3.

Take our graphing tools. They're as easy to use as the Mac itself. With just a point and a click of your mouse, you can preview, create and change all graphs. And the icon palette offers you every type of graph imaginable–3D pie charts, bar charts, area and scatter graphs–literally hundreds of variations are available to you in an array of colors.

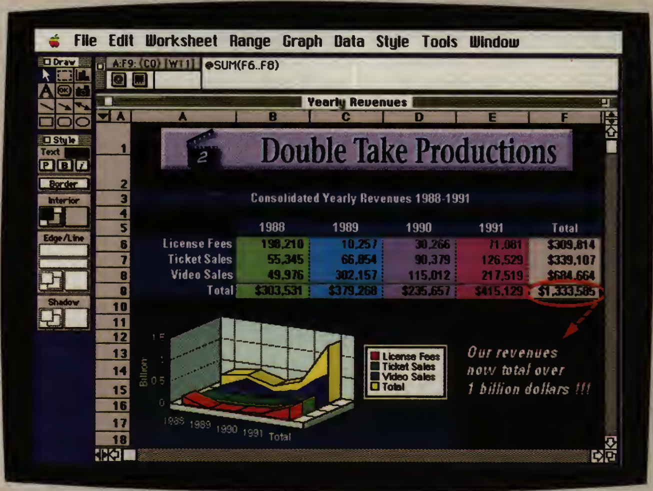
You probably first bought your Macintosh because it would make life easier for you. You'll buy this spreadsheet for the same reason. You see, 1-2-3 for Macintosh is the only Mac spreadsheet to provide true 3D technology. So, in addition to file linking, you can use 3D to consolidate data or create multi-page reports all in a single worksheet file.

# u of why you bought in the first place.



*A tear-off palette full of 3D pie, bar, area and scatter graphs will help you make the numbers look good.*

You can view and work with up to 256 worksheets simultaneously. In short, 3D makes the job of analyzing and consolidating a snap. And after using it, you'll wonder how you got along so long without it.



A:F9: (C0) [W11] @SUM(F6..F8)

Double Take Productions

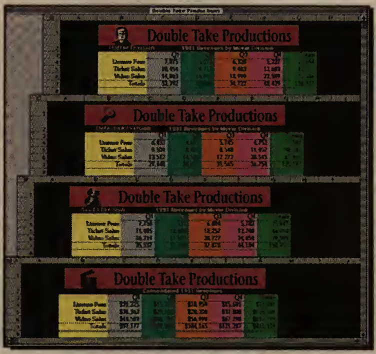
Consolidated Yearly Revenues 1988-1991

| | 1988 | 1989 | 1990 | 1991 | Total |
|---|---|---|---|---|---|
| License Fees | 198,210 | 10,257 | 30,266 | 71,081 | $309,814 |
| Ticket Sales | 55,345 | 66,854 | 90,379 | 126,529 | $339,107 |
| Video Sales | 49,976 | 302,157 | 115,012 | 217,519 | $684,664 |
| Total | $303,531 | $379,268 | $235,657 | $415,129 | $1,333,585 |

Our revenues now total over 1 billion dollars !!!

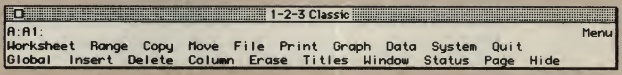
*Because 1-2-3 for Macintosh was designed just for the Mac, you'll feel right at home with its menus, tools and entire working environment.*

1-2-3 for Macintosh also offers in-cell editing, a feature that lets you edit text, formulas and data directly in the cell. So you can focus on the worksheet, instead of the formula bar above. Makes sense, doesn't it?



*Our unique 3D technology lets you view and work with up to 256 worksheets in a single file and create multi-page reports.*

Because the program captures the true spirit of Macintosh, it has recently earned the Editor's Choice Award from Computer Reseller News as well as praise from Apple Chairman and CEO John Sculley, who has called it, "a spectacular product."* (He doesn't throw comments like that around every day.)



```
1-2-3 Classic
A:A1:                                                        Menu
Worksheet  Range  Copy  Move  File  Print  Graph  Data  System  Quit
Global  Insert  Delete  Column  Erase  Titles  Window  Status  Page  Hide
```

*One press of the slash key brings up the 1-2-3 Classic® menu–welcome news to DOS users. The program is also compatible with other versions of 1-2-3, regardless of platform.*

So pick up a copy of 1-2-3 for Macintosh from your favorite dealer. Or call **1-800-TRADEUP, ext. 6683** for a free working model. (Excel users, be sure to ask about our special upgrade price.)

1-2-3 for Macintosh. It'll bring back fond memories.

## Lotus 1-2-3 for Macintosh

*Boston Globe 6/4/91. **There is a $5.00 fulfillment/handling charge when ordering the working model direct from Lotus. Please have your credit card and product package ready when you call. In Canada, call **1-800-GO-LOTUS.**

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and 2 MB of RAM. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (Feb '92) [MF#1107]

**Hewlett-Packard LaserJet IIISi 🐭🐭🐭🐭**

This black-and-white 300-dpi PostScript laser printer delivers fast performance and excellent text rendition. HP's RET system is built in. Based on Canon NX laser engine. Equipped with two 500-sheet paper trays. $6,995. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (Feb '92) [MF#1108]

**Hewlett-Packard LaserJet IIP 🐭🐭½**

The HP LaserJet IIP is slow when configured as an Adobe PostScript printer. Has a 50-sheet standard paper tray (an optional 250-sheet tray is available). Configuration is somewhat difficult. $2,195; 250-sheet paper tray, $195. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (Mar '91) [MF#1109]

**Hewlett-Packard PaintJet XL 🐭🐭🐭½**

This fast inkjet painter has low-resolution QuickDraw (180-dpi) quality but does produce good-looking output. Can't reproduce all colors. Requires Mac PrintKit. $2,495; Mac PrintKit, $125. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (May '90) [MF#1110]

**Hewlett-Packard PaintWriter 🐭🐭🐭🐭**

This slow color inkjet printer is quiet and compact. Produces bright, saturated transparencies. Printing on clay-coated paper produces dull colors. Three colors come in one ink cartridge, so cartridge must be replaced when one color runs out. Resolution is 180 dpi. Maximum printable area is 8 x 10.7 inches. Doesn't include PostScript, so Mac processes images for printer. Requires 32-bit QuickDraw. $995. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (Oct '91) [MF#1111]

**Hewlett-Packard PaintWriter XL 🐭🐭🐭🐭**

This color inkjet printer is quiet, fast, and networkable. Produces bright, saturated transparencies. Printing on clay-coated paper produces dull colors. Colors come in separate ink cartridges. Resolution is 180 dpi, and the maximum printable area is 10.7 x 16.6 inches. Doesn't include PostScript, so Mac processes images for printer. Requires 32-bit QuickDraw. $2,595. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (Oct '91) [MF# 1112]

**Kodak Diconix Color 4 🐭🐭½**

Diconix Color 4 is a quiet, compact, affordable 192-dpi color inkjet printer with poor print quality and limited print area. Accepts plain paper. Provides serial port but no LocalTalk port. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $895. Eastman Kodak (Printer Products Division), 901 Elmgrove Rd., Rochester, NY 14653. 800-255-3434 or 716-253-0740. (May '92) [MF#1113]

**Kodak Diconix M150 Plus 🐭🐭🐭**

The Diconix M150 Plus is a tiny inkjet printer that runs on batteries or AC and fits easily in a briefcase. Slow and lacks PostScript but comes with Adobe Type Manager and 13 Adobe fonts. Its 192-dpi image quality could be better. Limited printable area. $549. Eastman Kodak (Printer Products Division), 901 Elmgrove Rd., Rochester, NY 14653. 800-255-3434 or 716-253-0740. (Sept '91) [MF#1114]

**Kodak Ektaplus 7016 🐭🐭🐭½**

This networkable printer doubles as a plain-paper copier with excellent image quality. Can handle simultaneous printing from networked Macs and PCs, even while being used as a copier. Good performance with text files and simple graphics but bogs down severely with complex PostScript images. Comes with two letter-sized, 250-sheet paper trays. Includes 35 Adobe outline fonts. Version 1.4.3 reviewed. Configured for PostScript and AppleTalk, $7,190. Eastman Kodak (Printer Products Division), 901 Elmgrove Rd., Rochester, NY 14653. 800-255-3434 or 716-253-0740. (Nov '91) [MF#1115]

**Kodak XL7700 🐭🐭🐭🐭½**

The XL7700 continuous-tone color printer creates hard copy that looks as good as the original scanned photo. By using dye sublimation, the printer blends colors between adjacent pixels to generate realistic images. The printer requires expensive color media. $24,895. Eastman Kodak Co., 343 State St., Rochester, NY 14650. 800-242-2424 or 716-724-4000. (Jan '91) ★ '90 Eddy [MF#1116]

**LaserMaster LaserMAX 1000 🐭🐭🐭**

This slow black-and-white 1,000-x-400-dpi laser printer ties up host Mac. Good image quality, especially for halftones. Uses its own NuBus card and LaserMaster ETI interpreter (PostScript clone). Based on Canon SX laser engine. Equipped with one 250-sheet paper tray. Requires NuBus-capable Mac. $6,995 direct. LaserMaster Corp., 7156 Shady Oak Rd., Eden Prairie, MN 55344. 800-950-6363 or 612-944-9151. (Feb '92) [MF# 1117]

**Mitsubishi International CHC-S445 🐭🐭🐭½**

This 300-dpi dye-sublimation continuous-tone color printer produces near-photo-quality images with realistic colors. Slow. Useful as proofing device in prepress work. Includes external RIP to support true Adobe PostScript. Requires Mac II series or higher with 4 MB of RAM, 32-bit QuickDraw, and a hard-disk drive. $18,750. Mitsubishi International Corp., 701 Westchester Ave., White Plains, NY 10604. 914-997-4999. (May '92) [MF#1118]

**Mitsubishi S340-10 🐭🐭🐭🐭**

This sublimal-dye-transfer printer creates excellent proofs. Superb print quality. Color range is limited, but gradients are excellent. Lacks Mac interface. $13,995. Mitsubishi Electronics America, 5665 Plaza Dr., Cypress, CA 90630. 800-843-2515 or 714-236-6352. (May '90) [MF#1119]

**NEC Colormate PS Model 80 🐭🐭🐭🐭½**

This PostScript printer is very fast. Halftoning is poor, but overall image quality and color registration are good. The optional hard drive stores printer fonts and helps boost performance. $8,995; optional 20-MB hard drive, $995. NEC Technologies, Inc., 1414 Massachusetts Ave., Boxborough, MA 01719. 800-632-4636 or 508-264-8000. (May '91) [MF#1120]

**NEC Silentwriter 2 Model 90 🐭🐭🐭🐭**

The fast Silentwriter 2 Model 90 is a large PostScript printer with a low price. Speed is six pages per minute. Uses a Minolta laser engine, has 35 built-in Adobe fonts and a 250-sheet paper tray. $2,495. NEC Technologies, Inc., 1414 Massachusetts Ave., Boxborough, MA 01719. 800-632-4636 or 508-264-8000. (Mar '91) [MF#1121]

**Océ G5241-PS 🐭🐭🐭🐭**

The G5241-PS is a fast, compact thermal-wax-transfer color PostScript printer. Standard RAM configuration is 5 MB, upgradable to 8 MB. Halftoning is poor, but overall image quality is good. A SCSI port is included for use with third-party hard drives. $6,990. Océ Graphics USA, Inc., P.O. Box 7169, Mountain View, CA 94039. 800-545-5445 or 415-964-7900. (May '91) [MF#1122]

**Orange Micro Grappler 🐭🐭🐭🐭**

The Grappler LX connects Macs to laser and 24-pin letter-quality printers that have parallel interfaces. A cable, driver software, and special fonts combine to make non-PostScript printers compatible with the Mac. The Grappler LS uses slower serial, not parallel, connections. Performance with Hewlett-Packard-compatible printers is adequate. Has a built-in spooler. Version 1.0 reviewed. Requires Mac Plus or later, System 6.03 or later, a hard-disk drive, and 1 MB of printer RAM. LX version, $199; LS version, $99. Orange Micro, Inc., 1400 N. Lakeview Ave., Anaheim, CA 92807. 714-779-2772. (Nov '88) ★ '87 Eddy [MF#1123]

**Orange Micro Grappler IIsp 🐭🐭🐭½**

This dot-matrix-printer interface cartridge emulates the ImageWriter LQ for maximum compatibility. Includes networking and spooling software. Supports inkjet and laser printers. Uses control panel and somewhat quirky LQ driver. Requires Mac Plus or later. $159. Orange Micro, Inc., 1400 N. Lakeview Ave., Anaheim, CA 92807. 714-779-2772. (July '92) [MF#1124]

**QMS ColorScript 100 Model 10 🐭🐭🐭½**

This four-color thermal-wax-transfer PostScript printer is fast and simple to install and use. Excellent typographic capability. Standard RAM configuration is 5 MB, upgradable to 8 MB. A SCSI port is included for use with third-party hard drives. $6,995. QMS, Inc., One Magnum Pass, Mobile, AL 36618. 800-523-2696 or 205-633-4300. (May '91) ★ '89 Eddy [MF#1125]

**QMS PS-2210 🐭🐭🐭🐭½**

The fast QMS PS-2210 is a good alternative to the LaserWriter IINTX PostScript printer and has equivalent output quality. A SCSI hard-disk drive can be attached for font storage. $9,995. QMS, Inc., One Magnum Pass, Mobile, AL 36618. 800-523-2696 or 205-633-4300. (Sept '91) [MF#1126]

**QMS PS-410 🐭🐭🐭🐭½**

The QMS PS-410 is a personal Adobe PostScript printer. Slow for printing plain text, but has superior speed for processor-intensive applications such as printing complex graphics. $1,995. QMS, Inc., One Magnum Pass, Mobile, AL 36618. 800-523-2696 or 205-633-4300. (Mar '91) ★ '90 Eddy [MF#1127]

**QMS PS-810 🐭🐭🐭½**

The QMS PS-810 is an eight-page-per-minute 300-dpi PostScript laser printer that competes with the LaserWriter IINT. Comes with 2 MB of RAM, upgradable to 3 MB. $3,995. QMS, Inc., One Magnum Pass, Mobile, AL 36618. 800-523-2696 or 205-633-4300. (July '88) [MF#1128]

**QMS PS-810 turbo 🐭🐭🐭½**

The fast QMS PS-810 turbo is a good alternative to the LaserWriter IINTX PostScript printer and produces equivalent output. Comes with one 200-sheet paper tray. A SCSI hard-disk drive can be attached for font storage. $5,495; 40-MB hard-disk drive, $1,495. QMS, Inc., One Magnum Pass, Mobile, AL 36618. 800-523-2696

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**MICE RATINGS** ....... 🐭 ........ 🐭½ ............ 🐭🐭 ............. 🐭🐭½ .............. 🐭🐭🐭 ............. 🐭🐭🐭½ ........... 🐭🐭🐭🐭 .......... 🐭🐭🐭🐭½ ............. 🐭🐭🐭🐭🐭

FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

or 205-633-4300. (Sept '91) [MF# 1129]

**QMS PS-820 turbo 🐁🐁🐁🐁**
The fast QMS PS-820 turbo is a good alternative to the LaserWriter IINTX PostScript printer and produces equivalent output. Comes with two 200-sheet paper trays. A SCSI hard-disk drive can be attached for font storage. $6,495; 40-MB hard-disk drive, $1,495. QMS, Inc., One Magnum Pass, Mobile, AL 36618. 800-523-2696 or 205-633-4300. (Sept '91) [MF#1130]

**QMS-PS 815 MR 🐁🐁🐁½**
This black-and-white, PostScript laser printer delivers good image quality. Resolution can be set to either 300 or 600 dpi. Based on Canon SX laser engine. Includes AppleTalk, serial, and parallel ports. Equipped with one 200-sheet paper tray. $5,495. QMS, Inc., One Magnum Pass, Mobile, AL 36618. 800-523-2696 or 205-633-4300. (Feb '92) [MF#1131]

**Qume CrystalPrint Express 🐁🐁🐁🐁**
This compact, fast PostScript-clone printer offers high-capacity, networkable printing. Its 300-dpi output quality is good. Can't read Type 1 fonts' built-in hinting; this problem lessens if horizontal resolution is increased to 600 dpi (requiring the 6-MB configuration). No SCSI port is provided for attaching a hard-disk drive. Comes with two 250-sheet paper trays, $3,495. Qume Corp., 260 S. Milpitas Blvd., Milpitas, CA 95035. 408-942-4000. (Sept '91) [MF#1132]

**Seiko ColorPoint PS Model 4 🐁🐁🐁🐁**
This compact, low-priced thermal-wax-transfer color printer is slow. Overall image quality is good, and it has the largest scalable usable print area on letter-sized paper. A SCSI port is included for use with third-party hard drives. Built-in fonts are from Bitstream. 90-day warranty. $6,999. Seiko Instruments USA, Inc., 1130 Ringwood Ct., San Jose, CA 95131. 408-922-5900. (May '91) [MF#1133]

**Seiko ColorPoint PSX Model 14 🐁🐁🐁½**
The ColorPoint PSX Model 14 is a 300-dpi thermal-wax-transfer color printer. Uses PhoenixPage (PostScript Level 1 clone). Can produce full-bleed tabloid pages and letter-sized output. $12,999. Seiko Instruments USA, Inc., 1130 Ringwood Ct., San Jose, CA 95131. 408-922-5900. (May '92) [MF#1134]

**Seiko Personal ColorPoint PS 🐁🐁🐁½**
The Personal ColorPoint PS is an affordable 300-dpi thermal-wax-transfer color printer. Uses PhoenixPage (PostScript clone). Poor printing quality on plain paper. $4,999. Seiko Instruments USA, Inc., 1130 Ringwood Ct., San Jose, CA 95131. 408-922-5900. (May '92) [MF#1135]

**Seiko Smart Label Printer Plus 🐁🐁🐁½**
The Smart Label Printer Plus uses a dynamic thermal print head that can produce text at 78-x-100-dpi or 150-x-200-dpi resolution on 1.125-x-3.5-inch standard 4150 labels. Included DA software offers no frills but is easy to use. Provides simple database capability for sorting and retrieving names and addresses. Recommmended if your labeling requirements won't change. Requires Mac Plus or later. $259. Seiko Instruments USA, Inc., 1130 Ringwood Ct., San Jose, CA 95131. 408-922-5900. (Feb '92) [MF#1136]

**Shinko CHC Series 🐁🐁🐁**
This 300-dpi thermal-wax-transfer printer has excellent image quality but is slow and has poor line resolution on transparencies. Limited color range. Requires Mac II series or higher with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. Shinko CHC-445, $4,500; Shinko CHC-745, $8,000; Shinko CHC-445 PS, $8,500; Shinko CHC-745 PS, $12,850. Mitsubishi International Corp., 701 Westchester Ave., White Plains, NY 10604. 914-997-4999. (May '90) [MF#1137]

**Tektronix ColorQuick 🐁🐁🐁🐁**
This color inkjet printer offers relatively high resolution and comes bundled with powerful color-matching software. Fast. Printing on clay-coated paper produces brilliant colors. Maximum printable area is 11 x 17 inches. Doesn't include PostScript, so Mac processes images for printer. Requires 32-bit QuickDraw and Mac Accessory Kit (software and manuals) plus third-party SCSI cable. $2,345; Mac Accessory Kit, $150; tractor feeder, $300. Tektronix, Inc., P.O. Box 500, Wilsonville, OR 97077. 800-835-6100 or 503-627-7111. (Oct '91) [MF# 1138]

**Tektronix Phaser II PXi 🐁🐁🐁🐁½**
This fast 300-dpi thermal-wax-transfer color printer offers excellent output, including exceptional transparencies. Uses true Adobe PostScript Level 2. $7,995. Tektronix, Inc., P.O. Box 500, Wilsonville, OR 97077. 800-835-6100 or 503-627-7111. (May '92) [MF#1139]

**Tektronix Phaser III PXi 🐁🐁🐁🐁**
The Phaser III PXi is a 300-dpi, phase-change color printer. Has very good image quality, with bright colors. Transparency output, however, is mediocre. Uses true Adobe PostScript Level 2. Internal technology is similar to thermal-wax-transfer printers' but instead uses dye-impregnated wax, which is melted and sprayed on the page. Large footprint. $9,995. Tektronix, Inc., P.O. Box 500, Wilsonville, OR 97077. 800-835-6100 or 503-627-7111. (May '92) ★ '91 Eddy [MF#1140]

**Tektronix Phaser PX 🐁🐁🐁🐁½**
This low-priced PostScript thermal-wax-transfer color printer is slow, but overall image quality is excellent, with strong colors and smooth halftones. Lacks SCSI port. Built-in fonts are from Bitstream. $7,995. Tektronix, Inc., P.O. Box 500, Wilsonville, OR 97077. 800-835-6100 or 503-627-7111. (May '91) [MF#1141]

**Texas Instruments microLaser PS35 🐁🐁🐁🐁**
This compact, easy-to-use, personal PostScript printer outputs six pages per minute. Uses a Sharp laser engine, has 35 built-in Adobe fonts, and has a 250-sheet paper tray. $2,849. Texas Instruments, Inc., P.O. Box 202230, Austin, TX 78720. 800-527-3500 or 214-995-2011. (Mar '91) [MF#1142]

**Texas Instruments microLaser XL PS35 🐁🐁🐁🐁½**
This moderately priced PostScript printer has a fast Sharp laser engine but a slow 68000 processor. Excellent image quality. Lacks SCSI port. Comes with one 250-sheet paper tray. $4,644. Texas Instruments, Inc., P.O. Box 202230, Austin, TX 78720. 800-527-3500 or 214-995-2011. (Sept '91) [MF#1143]

**Varityper VT600P 🐁🐁🐁🐁**
This 600-dpi PostScript laser printer provides camera-ready output. Excellent image quality. $16,995. Varityper, 11 Mt. Pleasant Ave., East Hanover, NJ 07936. 800-631-8134 or 201-887-8000. (Oct '90) [MF#1144]

**Varityper VT600W 🐁🐁🐁🐁**
This black-and-white 600-dpi PostScript laser printer is surprisingly fast, considering its near-typesetting resolution. Superb image quality. Comes with one 200-sheet paper tray. Big and bulky and needs service contract. AutoToner Replenisher lasts for about 12,000 prints. $14,995; on-site service contract, $1,995; AutoToner Replenisher, $995. Varityper, 11 Mt. Pleasant Ave., East Hanover, NJ 07936. 800-631-8134 or 201-887-8000. (Feb '92) [MF#1145]

## PERFORMANCE ENHANCERS

**Apple Macintosh IIci Logic Board Upgrade 🐁🐁🐁🐁½**
This acceleration option is a significant performance booster over the IIcx but requires 80-nanosecond or faster RAM SIMMs. Requires Mac IIcx. $2,399. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Aug '90) [MF#1146]

**Apple Quadra 700 Upgrade 🐁🐁🐁🐁½**
This upgrade is one of the best ways to boost the speed of a stock IIcx or IIci. Offers advantages of a fast SCSI controller, 24-bit-color support, a sound-in port, and the often-reassuring Apple logo. Factory-installed. $3,499. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (June '92) [MF#1147]

**ATTO SiliconExpress II 🐁🐁🐁½**
The SiliconExpress II is a Fast SCSI-2 NuBus card that's built for the future (when the Mac will take better advantage of multitasking). Can serve as bus-master card and has coprocessor to speed input/output for the Mac's CPU. Bus-master feature works with AppleShare 3.0. Sustained data-transfer rate is 10 MB per second. Uses 25-pin external SCSI connector. Requires Mac II series or higher. $1,295 direct. ATTO Technology, Inc., 1576 Sweet Home Rd., Amherst, NY 14228. 716-688-4259. (July '92) [MF# 1148]

**DayStar FastCache 🐁🐁🐁🐁🐁**
This full-height cache card fits into the processor-direct slot of a IIci or IIsi. The cache card has 25-nanosecond static RAM that increases the IIci's overall performance by approximately 30 percent. Requires Mac IIci or IIsi. $249 to $529. DayStar Digital, Inc., 5556 Atlanta Hwy., Flowery Branch, GA 30542. 800-962-2077 or 404-967-2077. (June '91) [MF# 1149]

**DayStar PowerCache 🐁🐁🐁🐁**
This accelerated cache card almost doubles the speed of a IIci under some conditions. Available for either a 40- or a 50-megahertz 68030 CPU. A 68882 FPU is available for this card. Includes second PDS for other cards. Requires Mac IIci or, with adapter, any Mac LC, SE/30, or II series. $949 to $2,349; adapter, $49. DayStar Digital, Inc., 5556 Atlanta Hwy., Flowery Branch, GA 30542. 800-962-2077 or 404-967-2077. (June '92) ★ '91 Eddy [MF#1150]

**Fusion Data TokaMac ci 🐁🐁🐁🐁**
Installed in a Mac IIci, the TokaMac ci delivers raw performance equal to that of a Quadra 700. Some software is incompatible with the 25-MHz 68040 CPU, but included software can disable acceleration and the CPU's cache. $2,595. Fusion Data Systems, 8920 Business Park Dr., Ste. 350, Austin, TX 78759. 512-338-5326. (June '92) [MF#1151]

**Fusion Data TokaMac LC 🐁🐁🐁🐁**
Installed in a Mac LC, the TokaMac LC PDS card delivers raw performance equivalent to that of a IIfx. Some software is incompatible with the 25-MHz 68040 CPU, but included software can disable acceleration and the CPU's cache. $2,495. Fusion Data Systems, 8920 Business Park Dr., Ste. 350, Austin, TX 78759. 512-338-5326. (June '92) [MF#1152]

**Fusion Data TokaMac SX 🐁🐁🐁🐁**
When installed in a Mac SE/30 or IIsi, the TokaMac SX PDS card

delivers more than triple the Mac's normal performance. Some software is incompatible with the 25-MHz 68040 CPU, but included software can disable acceleration and the CPU's cache. $2,595. Fusion Data Systems, 8920 Business Park Dr., Ste. 350, Austin, TX 78759. 512-338-5326. (June '92) [MF#1153]

**iir Cache Card 32 🐭🐭🐭🐭½**
This half-height cache card fits into the IIci's processor-direct slot. The cache card has 32K of 25-nanosecond static RAM that increases the IIci's overall performance by approximately 30 percent. Requires Mac IIci. $325. Impulse Technology, 210 Dahlonega St., Ste. 204, Cumming, GA 30130. 404-889-8294. (June '91) [MF#1154]

**Impulse Performance/040 🐭🐭🐭½**
This NuBus card that can almost triple a Mac IIci's normal performance. Some software is incompatible with the 25-MHz 68040 CPU, but included software can disable acceleration and the CPU's cache. Requires Mac II, IIx, IIcx, IIci, IIfx, or IIsi; IIsi requires NuBus adapter. $2,195. Impulse Technology, 210 Dahlonega St., Ste. 204, Cumming, GA 30130. 404-889-8294. (June '92) [MF# 1155]

**Micron Xceed IIci 🐭🐭🐭🐭🐭**
This full-height cache card fits into a IIci's processor-direct slot. It has 128K of 25-nanosecond static RAM that increases the IIci's overall performance by approximately 30 percent. Requires Mac IIci. $329. Micron Technology, Inc., 2805 E. Columbia Rd., Boise, ID 83706. 800-642-7661 or 208-368-3800. (June '91) [MF#1156]

**MicroNet NuPORT-II 🐭🐭🐭½**
This Fast SCSI-2 NuBus card supports disk arrays. Sustained data-transfer rate is 4.4 MB per second. Uses 50-pin external SCSI connector. Supports MicroNet hard-disk drives. Good software features. Requires NuBus-capable Mac. $600. MicroNet Technology, Inc., 20 Mason, Irvine, CA 92718. 714-837-6033. (July '92) [MF#1157]

**Newer fx/Overdrive 🐭🐭🐭**
This CPU-socket board boosts performance on a IIfx about 20 percent. Includes a 50-MHz 68030 CPU (clock speed can be reselected in software) and 68882 FPU. Uses 60-nanosecond RAM SIMMs. May not be compatible with all IIfx motherboards. Money-back guarantee. Version I reviewed. Version II shipping. Requires Mac IIfx. $850. Newer Technology, 7803 E. Osie St., Ste. 105, Wichita, KS 67207. 800-678-3726 or 316-685-4904. (June '92) [MF#1158]

**NewLife Accelerator! 🐭🐭🐭🐭½**
This accelerator card can boost a Classic's performance to nearly four times its normal processing speed. Performance with optional 68882 FPU chip installed is nearly double that of a Classic II, or equivalent to that of an SE/30. Affordable alternative to Apple's Classic II upgrade for those who don't need color support and 32-bit-clean ROMs. Version 1.0 reviewed. Requires Mac Classic. $529; with optional FPU chip, $599; optional video port (for monochrome monitors), $266. NewLife Computer Corp., 603 March Rd., Kanata, Ontario K2K 2M5 Canada. 800-663-6395 or 613-592-5080. (May '92) [MF# 1159]

**Novy Systems Quik30/Plus-33MHz 🐭🐭🐭½**
This accelerator gives Mac 512Ke, Plus, or SE owners IIci computing power. Limited SCSI throughput. Requires Mac 512Ke, Plus, or SE. With 16-MHz FPU, $795. Novy Systems, 1862 Fern Palm Dr., Edgewater, FL 32141. 800-553-2038 or 904-427-2358. (Aug '90) [MF#1160]

**Perspect Nexus fx 🐭🐭🐭½**
The factory-installed Perspect Nexus fx is an upgrade to the original IIfx motherboard. Boosts performance about 40 percent. Voids Apple warranty but Perspect covers entire upgraded motherboard with a one-year warranty. Uses 60-nanosecond RAM SIMMs. Requires Mac IIfx. $1,295 direct. Perspect Systems, Inc., 630 Venice Blvd., Venice, CA 90291. 800-736-1546 or 310-821-7884. (June '92) [MF#1161]

**PLI QuickSCSI 🐭🐭🐭🐭**
The QuickSCSI is a fast, affordable SCSI-2 NuBus card. Sustained data-transfer rate is 4.4 MB per second. Uses 50-pin external SCSI connector. Supports any hard-disk drive and SCSI removable-cartridge drives. Five-year warranty. Requires NuBus-capable Mac. $399. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (July '92) [MF#1162]

**Radius Rocket 🐭🐭🐭🐭**
This NuBus accelerator card has a 25-MHz MC68040 CPU and sophisticated memory-management features. Significantly boosts the host Mac's CPU and video performance. Triples the overall speed of a Mac IIx. Can hold as much as 128 MB of RAM, which can be configured as a RAM disk using Maxima 2.0 software (from Connectix). Rated at 4.5 amps at 5 volts with 8 MB of RAM, the Rocket may overload Macs already running multiple NuBus cards. Version 1.0 software reviewed. Version 1.2 shipping. Requires NuBus-capable Mac. $1,999; Rocket 25i (without math coprocessor), $1,499; Rocket 33 (with 33-MHz MC68040), $2,499. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (June '92) [MF#1163]

**Siclone Si3033 🐭🐭🐭🐭**
This accelerator is a speedy upgrade for the Mac II or IIx. Retains older CPU to allow downshift to unaccelerated mode. INIT provided enables proper floppy operation. Requires Mac II or IIx. Without FPU, $1,799; with FPU, $1,999. Siclone Sales and Engineering, 1072 Saratoga-Sunnyvale Rd., Bldg. A-107, Ste. 443, San Jose, CA 95129. 408-534-1742. (Aug '90) [MF#1164]

**Siclone Si3050 🐭🐭🐭🐭**
This accelerator is very fast. INIT enables proper floppy operation. Requires Mac II or IIx. Without FPU, $2,499; with FPU, $2,999. Siclone Sales and Engineering, 1072 Saratoga-Sunnyvale Rd., Bldg. A-107, Ste. 443, San Jose, CA 95129. 408-534-1742. (Aug '90) [MF#1165]

**Sigma Bullet 030 🐭🐭🐭**
The Sigma Bullet 030 is a CPU accelerator that's available as a cache card for the Mac IIci and as a PDS card for the IIsi. Relatively slow and has poor documentation. $1,995. Sigma Designs, 47900 Bayside Pkwy., Fremont, CA 94538. 800-845-8086 or 510-770-0100. (June '92) [MF#1166]

**Sixty Eight Thousand dash 30fx 🐭🐭🐭½**
More than just a CPU accelerator, the 30fx is a complete, factory-installed rebuild of your IIfx. Finished package is in a lockable, upright metal tower case. Includes 40-MHz 68030 CPU and 68882 FPU, both running at 50 MHz clock speed. Has Fast-SCSI-2 card and 8 MB of RAM. Performance boost is about 20 percent. Requires Mac IIfx. $3,995 direct; more-advanced configurations available. Sixty Eight Thousand, Inc., 160 Technology Cir., Scotts Valley, CA 95066. 408-438-1777. (June '92) [MF#1167]

**Storage Dimensions Data Cannon PDS/FX 🐭🐭🐭½**
This Fast SCSI-2 PDS card is built for the future (when the Mac will take better advantage of multitasking). Can serve as bus-master card and has coprocessor to speed input/output for the Mac's CPU. Sustained data-transfer rate is 10 MB per second. Uses 25-pin external SCSI connector. Works with Storage Dimensions' hard-disk drives and erasable-optical drives. Requires PDS-capable Mac. $859. Storage Dimensions, Inc., 1656 McCarthy Blvd., Milpitas, CA 95035. 408-944-0710. (July '92) [MF#1168]

**Technology Works Cache Card 64 🐭🐭🐭🐭🐭**
The Cache Card 64 is a full-height cache card that fits into the IIci's processor-direct slot. The cache card has 64K of 25-nanosecond static RAM that increases the IIci's overall performance by approximately 30 percent. Requires Mac IIci. $269. Technology Works, Inc., 4030 Braker Lane W., Ste. 350, Austin, TX 78759. 800-688-7466 or 512-794-8533. (June '91) [MF#1169]

**Total Systems Gemini 020 🐭🐭🐭🐭**
This accelerator's installation is complex. Recommended GemKit option speeds SCSI throughput on Mac Plus. Can be upgraded to 68030. Cost-effective and speedy for Mac Plus. Requires Mac 128K, 512K, Plus, or SE. Mac 128K, 512K, and Plus version, $895; Mac 128K, 512K, and Plus version with FPU, $1,045; SE version, $745; SE version with FPU, $935. Total Systems, 1720 Willow Creek Cir., Eugene, OR 97402. 800-874-2288 or 503-345-7395. (Aug '90) [MF# 1170]

**Total Systems Gemini 030 🐭🐭🐭🐭½**
This accelerator has fast 68030/68882 chips and high clock speed. Complex installation. GemKit option speeds SCSI throughput on Plus. Can boost Plus performance past that of a IIci. Requires Mac 128K, 512K, Plus, or SE. Mac 128K, 512K, and Plus version, $1,895; Mac 128K, 512K, and Plus version with FPU, $2,395; SE version, $1,695; SE version with FPU, $2,195. Total Systems, 1720 Willow Creek Cir., Eugene, OR 97402. 800-874-2288 or 503-345-7395. (Aug '90) [MF# 1171]

**Total Systems Magellan 040 🐭🐭🐭🐭**
This CPU accelerator installs as a PDS card. More than triples the performance of a IIsi. Uses 25-MHz 68040 CPU but no FPU. Requires Mac SE/30, IIci, IIsi, or LC. $2,249 direct. Total Systems, 1720 Willow Creek Cir., Eugene, OR 97402. 800-874-2288 or 503-345-7395. (June '92) [MF#1172]

**Total Systems QuickCache IIci 🐭🐭🐭🐭🐭**
This full-height cache card fits into the IIci's processor-direct slot. The cache card has 128K of 25-nanosecond static RAM that increases the IIci's overall performance by approximately 30 percent. Requires Mac IIci. $269. Total Systems, 1720 Willow Creek Cir., Eugene, OR 97402. 800-874-2288 or 503-345-7395. (June '91) [MF#1173]

**UR Micro MacCache 64 🐭🐭🐭🐭½**
This full-height cache card fits into the IIci's processor-direct slot. The cache card has 64K of 25-nanosecond static RAM that increases the IIci's overall performance by approximately 30 percent. Requires Mac IIci. $199. UR Micro, 1659 N. Forest Rd., Williamsville, NY 14221. 800-876-4276 or 716-689-1600. (June '91) [MF#1174]

**UR Micro MacCache LP32 🐭🐭🐭🐭½**
This half-height cache card fits into the Mac IIci's processor-direct slot. The cache card has 32K

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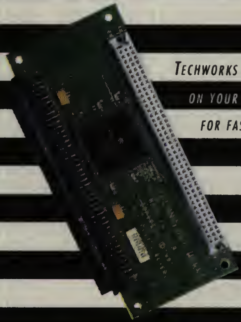

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| CARDS | |
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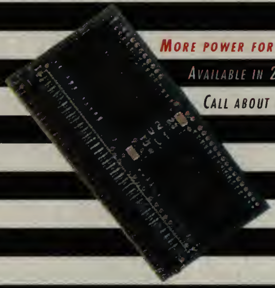

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of 25-nanosecond static RAM that increases the IIci's overall performance by approximately 30 percent. Requires Mac IIci. $189. UR Micro, 1659 N. Forest Rd., Williamsville, NY 14221. 800-876-4276 or 716-689-1600. (June '91) [MF#1175]

## PROGRAMMING & SYSTEMS

**AAIS Prolog 🐁🐁🐁🐁**
AAIS Prolog is a fast standard Prolog with excellent debugging and error handling. Good for serious program development. Poor documentation. Version 1.0 reviewed. Version 3.0 shipping. Requires Macintosh Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $598 direct; educational and volume discounts available. Advanced AI Systems, P.O. Box 39-0360, Mountain View, CA 94039. 415-948-8658. (Mar '87) [MF#1176]

**Acknowledge 🐁🐁🐁🐁½**
This combination communications program and interpreted-language system lets advanced programmers create customized applications that accomplish many telecommunications tasks—from automatically picking up E-mail to communicating with VAXes. Version 1.0 reviewed. Requires Mac Plus or later; hard-disk drive recommended. $199. Prometheus Products, Inc., 9524 S.W. Tualatin Sherwood Rd., Tualatin, OR 97062. 800-328-2337 or 503-692-9600. (Jan '89) ★ '88 Eddy [MF#1177]

**Apple A/UX 🐁🐁🐁🐁½**
Apple's implementation of UNIX for the Mac offers the best features of the Mac interface and operating system along with full UNIX functionality. Version 3.0 shipping. Requires Mac with 68030 CPU (or 68020 and PMMU), 4 MB of RAM, and 80-MB hard drive (IIfx with 20 MB of RAM and large hard-disk drive recommended). CD-ROM, $709; floppy disks, $995. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Jan '91) [MF#1178]

**AppMaker 🐁🐁🐁🐁½**
Using a familiar, object-oriented drawing environment, AppMaker lets you design and edit user-interface elements for powerful Mac applications. Generates code automatically and supports MPW C and Pascal, THINK C and Pascal, TCL, A/UX, C++, and MacApp. Version 1.1 reviewed. Version 1.5 shipping. Requires Mac Plus or later with System 6.03 or later; hard-disk drive recommended. $295; site licenses available. Bowers Development, 97 Lowell Rd., Concord, MA 01742. 508-369-8175. (Oct '90) [MF#1179]

**Cause 🐁🐁**
Cause is a database-programming environment designed for non-programmers. Nonstandard formats. Unable to create a true Mac interface. Version 2.1 reviewed. Requires Mac Plus or later with System 5.0 or later. $395. Pluma, Inc., 116 E. Greenway, Ste. 101, Mesa, AZ 85203. 602-969-9441. (June '92) [MF#1180]

**CompileIt! 🐁🐁🐁🐁🐁**
CompileIt! is an excellent HyperTalk compiler that creates and then either exports or installs XCMDs and XFCNs. Programming language is HyperTalk. Fast. Good manual. Requires some programming experience beyond HyperTalk. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later with 2 MB of RAM, HyperCard, and a hard-disk drive. $99. Heizer Software, P.O. Box 232019, Pleasant Hill, CA 94523. 800-888-7667 or 510-943-7667. (Feb '92) [MF#1181]

**ConvertIt! 🐁🐁🐁🐁**
ConvertIt! does an excellent job of converting older, simple HyperCard stacks to a format usable by ToolBook, a Windows hypermedia product. Has some conversion problems with scripts, icons, bit-mapped graphics, type fonts, sounds, XCMDs, XFCNs, and field numbers. Version 1.2 reviewed. Version 1.5 shipping. Requires Mac Plus or later, a 386-based PC with 4 MB of RAM, and a way to perform Mac-to-PC text transfer. $199. Heizer Software, P.O. Box 232019, Pleasant Hill, CA 94523. 800-888-7667 or 510-943-7667. (June '91) [MF#1182]

**Debugger V2 and MacNosy 🐁🐁🐁🐁½**
The Debugger V2 is a run-time debugger; MacNosy is a well-established global interactive decompiler. These powerful tools are not for casual users. The Debugger is great if you have two screens available. Both parts of the package work well with common environments, including THINK Pascal and C and all flavors of MPW. Confusing manual. Version 1.5 reviewed. Version 2.45 shipping. Requires 2 MB of RAM and System 6.03 or later; hard-disk drive recommended. $350. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. 415-322-1386. (July '90) [MF#1183]

**Dialoger Professional 🐁🐁🐁🐁**
Dialoger Professional is a great HyperCard utility for programmers. Easy-to-master palette-based interface lets you build complex dialog boxes. Virtually all the power of the Mac's Dialog Manager is available. Greatly improves appearance and functionality of stacks. Version 1.02 Dialoger Pro reviewed. Version 1.0 WindowScript shipping. Requires Mac Plus or later, System 6.05 or later, and HyperCard 2.1; hard-disk drive recommended. $149. Heizer Software, P.O. Box 232019, Pleasant Hill, CA 94523. 800-888-7667 or 510-943-7667. (Feb '90) [MF#1184]

**HookUp! 🐁🐁🐁🐁**
HookUp! is an iconic software-programming utility. It teaches the basic concepts of programming, simple animation, sound manipulation, and even a few more-sophisticated functions. Version 1.01 reviewed. $149. Hip Software Corp., c/o VPL Research, Inc., 656 Bair Island Rd., Redwood City, CA 94063. 415-306-1150 or 415-361-1710. (Jan '91) [MF#1185]

**HyperAnimator 🐁🐁🐁🐁**
HyperAnimator lets you create talking heads for HyperCard stacks, using MacinTalk or digitized sound resources. Version 1.0 reviewed. Version 1.5.2 shipping. Requires Mac Plus or later and HyperCard. $199.95. Bright Star Technology, Inc., 1450 114th Ave. S.E., Ste. 200, Bellevue, WA 98004. 206-451-3697. (Feb '89) [MF#1186]

**HyperBundle 🐁🐁🐁½**
HyperBundle is a set of five HyperCard utilities. The handy SuperPalette manages floating windows and customized check boxes, radio buttons, menus, and other interface goodies. The other stacks provide sophisticated control of icons, scripts, and access to non-HyperCard files and applications. Version 2.0 reviewed. Requires Mac Plus or later and HyperCard 2.0. $249. Hyperpress Publishing Corp., P.O. Box 8243, Foster City, CA 94404. 800-633-4252 or 415-345-4620. (Nov '91) [MF#1187]

**HyperCard 🐁🐁🐁🐁½**
Although it lacks support for color and object graphics, HyperCard 2.0's text formatting, text handling, and printing are significantly improved over earlier versions. More than one stack can be open at a time, and windows can be resized. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.05 or later, and a hard-disk drive. Development Kit, $199. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (Dec '90) ★ '87 Eddy [MF#1188]

**INIThound 🐁🐁🐁🐁🐁**
This developers' tool carefully monitors the startup process and reports exactly what transpires. A handy tool for eliminating INIT (extension) conflicts. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later. $129. Cambridge Information Ware, P.O. Box 1296, Cambridge, MA 02238. 617-484-8364. (Mar '90) [MF#1189]

**interFACE 🐁🐁🐁🐁**
interFACE is a good tool for building interactive educational software. At first the program seems dedicated to creating animated "talking heads" with facial gestures synchronized to speech or other sounds. But you can build interactive programs, using recorded sounds and bit-mapped graphics. Version 1.0 reviewed. Requires Mac Plus or later with 2 MB of RAM. $499.95. Bright Star Technology, Inc., 1450 114th Ave. S.E., Ste. 200, Bellevue, WA 98004. 206-451-3697. (Feb '91) [MF#1190]

**Peacock 🐁🐁🐁🐁**
Peacock is a single HyperCard utility for importing and exporting text. Clever interface assists users in transferring text between HyperCard fields and text files. Can precisely filter and reformat comma- or tab-delimited text files from databases. Perfect for heavy-duty HyperCard users managing large databases. Version 2.0 reviewed. Version 2.11 shipping. Requires HyperCard 2.0. $69. Cyan, Inc., P.O. Box 28096, Spokane, WA 99228. 509-468-0807. (Nov '91) [MF#1191]

**Prograph 🐁🐁🐁🐁**
Prograph is a completely visual programming language. Each different programming construct has a unique pictogram associated with it. Version 1.22 reviewed. Version 2.5 shipping. Requires Mac Plus or later and a hard-disk drive. $495. TGS Systems Ltd., 2745 Dutch Village Rd., Ste. 200, Halifax, Nova Scotia B3L 4G7 Canada. 800-565-1978 or 902-455-4446. (Sept '90) ★ '89 Eddy [MF#1192]

**Quintus MacProlog 🐁🐁🐁🐁**
This useful program includes incremental and optimizing compilers, a graphics-environment package, and C and Pascal submodules. Supports color. Version 2.0 reviewed. Version 3.5 and Quintus Prolog++ shipping. Requires Mac Plus or later. $595. Quintus Corp., 2100 Geng Rd., Ste. 101, Palo Alto, CA 94303. 415-813-3800. (Feb '88) [MF#1193]

**ScriptEdit 🐁🐁🐁🐁**
ScriptEdit is a HyperTalk utility that opens multiple script windows simultaneously from different stacks. Makes stack creation easier and more convenient than previously possible. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later. $79. Somak Software, Inc., 535 Encinitas Blvd., Ste. 113, Encinitas, CA 92024. 800-842-5020 or 619-942-2556. (Feb '90) [MF#1194]

**ScriptExpert 🐁🐁🐁🐁**
ScriptExpert is the HyperTalk helper for constructing scripts. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later and HyperCard 1.2.5 or 2.0 (package includes software for both versions). $99.95. Hyperpress Publishing Corp., P.O. Box 8243, Foster City, CA 94404. 800-633-4252 or 415-345-4620. (Oct '88) [MF#1195]

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# MINIFINDERS

**SuperCard 🐭🐭🐭🐭**
SuperCard offers capabilities that HyperCard lacks. An excellent tool for developing animated presentations and other graphically rich applications. Version 1.1 reviewed. Version 1.6 shipping. Requires Mac Plus or later with 2 MB of RAM and System 6.04 or later. $299. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Dec '90) [MF#1196]

**THINK C 🐭🐭🐭🐭½**
This object-oriented programming language features rapid turnaround time for development and testing of programs through use of an integrated compiler, linker, and editor. Version 4.0 reviewed. Version 5.0 shipping. Requires Mac Plus or later and System 6.03 or later; hard-disk drive recommended. $299. Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014. 800-441-7234 or 408-253-9600. (Mar '90) ★ '88, '91 Eddy [MF#1197]

**THINK Pascal 🐭🐭🐭🐭🐭**
THINK Pascal is at the cutting edge of software development for the Macintosh. Has full support for object-oriented programming and has an exemplary development environment that includes integrated source-level debugging and extraordinarily fast compile-and-link times. Version 3.0 reviewed. Version 4.0 shipping. Requires Mac Plus or later and System 6.03 or later. $249; upgrade, $69. Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014. 800-441-7234 or 408-253-9600. (Sept '90) ★ '90 Eddy [MF#1198]

**TMON Professional 🐭🐭🐭**
This popular low-level debugger displays memory in hexadecimal and ASCII, disassembles code (68000 up to 68040), and displays all blocks in a heap. Sets breakpoints on specific instructions or on specific system calls. Lets you step through applications one instruction at a time while watching registers change as the program executes. Configuration can be difficult, and learning curve will intimidate even experienced users. Documentation needs improvement. Version 3.0 reviewed. Requires 2 MB of RAM. $250. ICOM Simulations, Inc., 648 S. Wheeling Rd., Wheeling, IL 60090. 800-877-4266 or 708-520-4440. (Jan '92) [MF#1199]

**V.I.P. (Visual Interactive Programming) 🐭🐭🐭🐭**
V.I.P. is a unique visual-programming system for creating simple Mac applications. Programs are constructed in a flowchart-type manner. Easy access to most Toolbox routines. Translators are available for THINK C and Pascal, Turbo Pascal, and MPW C and Pascal. Version 2.0 reviewed. Version 2.5 shipping. Requires Mac Plus or later and System 6.03 or later. $149.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. 818-991-6540. (June '87) [MF#1200]

## RESOURCES

**Complete Works of Shakespeare 🐭🐭🐭🐭½**
This CD-ROM presents all the Bard's sonnets and poems plus his plays in both modern and Queen's English. Includes CMC's wickedly-fast rapid-access Disc-Passage software. Uses only the unsophisticated Geneva font. Requires CD-ROM drive. $29.95. CMC ReSearch, Inc., 514 N.W. 11th St., Ste. 203, Portland, OR 97209. 800-262-7668 or 503-241-4351. (July '92) [MF#1201]

**Correct Quotes 🐭🐭🐭🐭**
Correct Quotes is a user-modifiable database of famous quotes. Good interface. Quickly searches by topic or by author. Not very comprehensive, but can incorporate new quotes from celebrities such as yourself. Version 1.0 reviewed. Requires Mac Plus or later, System 5.0 or later, and a hard-disk drive. $49.95. WordStar International, Inc., 201 Alameda del Prado, Novato, CA 94949. 800-523-3520 or 415-382-8000. (July '92) [MF#1202]

**Educorp CD-ROM 🐭🐭🐭🐭**
Educorp CD-ROM contains approximately 600 MB of shareware, public-domain software, and demoware in 23 categories such as business education, music, and fonts. Version 3.0 reviewed. Version 6.0 shipping. $199 (two-disc set) includes HyperCard 2.1. Educorp Computer Services, 7434 Trade St., San Diego, CA 92121. 800-843-9497 or 619-536-9999. (July '89) [MF#1203]

**Grolier New Electronic Encyclopedia 🐭🐭🐭🐭🐭**
This CD-ROM contains 33,000 articles (ten million words) covering lots of up-to-date information. Innovative design includes many high-quality color maps, famous paintings, photographs, and digitized sounds. Version 1991 Edition 2.0 reviewed. Requires CD-ROM drive. $395. Grolier Electronic Publishing, Inc., Sherman Turnpike, Danbury, CT 06816. 800-356-5590 or 203-797-3500. (July '92) [MF#1204]

**Health: AIDS 🐭🐭🐭🐭**
Published by ABC News Interactive, this interactive package includes a HyperCard navigation stack on a floppy and multiple video clips on a videodisc. Provides basic information about AIDS. Intended for junior-high and high-school students. Well-designed, accurate, and informative, makes good use of the Mac/videodisc combination. Requires Mac Plus or later, HyperCard, videodisc player, and color TV monitor. $495. Optical Data Corp., 30 Technology Dr., Warren, NJ 07059. 800-524-2481 or 201-668-0022. (Dec '91) [MF#1205]

**HyperBible 🐭🐭🐭🐭**
HyperBible includes more than 9 megabytes of easily-searchable Bible text. There are several ways to find desired material. Cluttered, inelegant interface. Version 2.0 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $199. Beacon Technology, 631 Elkton Dr., Colorado Springs, CO 80907. 719-594-4884. (July '92) [MF#1206]

**MacGlobe 🐭🐭🐭½**
MacGlobe is part world-atlas and part almanac. Provides an extensive, annually updated database of information on 190 countries. Export and printing capabilities are weak. On-screen interactive maps can display country outlines, important statistics, and national flags; information on city locations and topographic elevation; geographic and tourist features; and a point-and-click button that plays a digitized national anthem. Database needs more-thorough fact checking but provides excellent value for K–12 education market. Requires Mac Plus or later and System 6.03 or later; color display system recommended. $69. PC Globe, Inc., 4700 S. McClintock, Tempe, AZ 85282. 602-730-9000. (July '92) [MF#1207]

**Otzar Plus 🐭🐭🐭🐭🐭**
This substantial HyperCard stack of Jewish wit and wisdom is fun and informative. Has well-designed interface. Database needs more topics and better explanation of stack icons. Version 1.0 reviewed. Requires HyperCard. $39.95. Davka Corp., 7074 N. Western Ave., Chicago, IL 60645. 312-465-4070. (July '92) [MF#1208]

**Point of View 🐭🐭🐭🐭🐭**
Point of View is a dynamic program that makes exploring American history interesting and fun. Comes with more than 2,000 pages of documents, hundreds of graphics, and 140 census tables, with tools for searching, accessing, and displaying the data. Version 1.0 shipping. Requires Macintosh Plus or later; hard-disk drive recommended. $199.95. Scholastic Software, 730 Broadway, New York, NY 10003. 800-541-5513 or 212-505-3000. (Nov '90) [MF#1209]

**Vietnam War 🐭🐭🐭🐭🐭**
This HyperCard stack brilliantly provides an excellent history through the use of sounds, animation, generally superior graphics, and unobtrusive but extensive links. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later, HyperCard 2.0, and a hard-disk drive. $24.95 direct. Regeneration Software, 377 Collado Dr., Scotts Valley, CA 95066. 408-438-5791. (Apr '90) [MF#1210]

**Voyager, the Interactive Desktop Planetarium 🐭🐭🐭🐭🐭**
Voyager, the Interactive Desktop Planetarium, lets you view the sky as a star chart, as a celestial sphere, or as seen from anywhere in the universe. Terrific learning tool. Version 1.0 reviewed. Version 1.2 shipping. Requires Mac Plus or later and System 6.03 or later. $124.50. Carina Software, 830 Williams St., San Leandro, CA 94577. 510-352-7328. (Sept '89) [MF#1211]

**Webster's Ninth New Collegiate Dictionary 🐭🐭🐭🐭½**
This CD-ROM includes a complete electronic version of the standard hardcover dictionary. Type can be viewed at any size. Has easy-to-use search engine. Version 1.05 reviewed. Requires CD-ROM drive. $199.95. Highlighted Data, Inc., 4350 N. Fairfax Dr., Ste. 450, Arlington, VA 22203. 703-516-9211. (July '92) [MF# 1212]

## SCANNERS

**Abaton 8-bit Apple Scanner Upgrade 🐭🐭🐭🐭**
This upgrade greatly improves the gray-scale capabilities of the Apple Scanner. Requires Mac Plus or later and Apple Scanner. $595. Abaton (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (Sept '90) [MF#1213]

**Abaton Scan 300/GS 🐭🐭🐭½**
This 300-dpi monochrome scanner creates good halftone images. Includes ImageStudio software. Requires Mac Plus or later. $1,595. Abaton (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (Sept '90) [MF#1214]

**Agfa Focus II S800GSE 🐭🐭🐭🐭½**
This 8-bit gray-scale-only flatbed scanner has high resolution. Optional, excellent software is highly intuitive. Requires Mac Plus or later. $5,495; NC View software, $495. Agfa Division, Miles, Inc., 200 Ballardvale St., Wilmington, MA 01887. 800-227-2780 or 508-658-5600. (Sept '90) [MF#1215]

**Agfa Focus S800GS 🐭🐭🐭🐭**
This 400-dpi, 6-bit gray-scale scanner simulates resolutions up to 800 dpi. It has superior resolution and good halftone quality. Professional-quality software has extensive editing features and printing options. Requires Mac Plus or later and NC View software. $3,995; NC View software, $495. Agfa Division, Miles, Inc., 200 Ballardvale St., Wilmington, MA 01887. 800-227-2780 or 508-658-5600. (June '89) ★ '88 Eddy [MF#1216]

**AVR 3000/CL Plus 🐭🐭🐭**
This 24-bit 300-dpi flatbed color scanner has a maximum image area of 8.5 x 14 inches. Colors are not saturated, and Easy Scan DA software is hard to use. Comes

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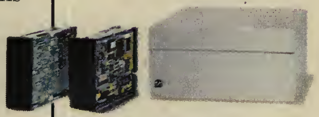

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with a SCSI interface and cable. External SCSI termination. Two-year warranty. Maximum software-interpolated resolution is 1,600 dpi for color scans and line art. Requires Mac with 24-bit-color display system. $1,890. Advanced Vision Research, Inc., 562 S. Milpitas Blvd., Milpitas, CA 95035. 800-544-6243 or 408-956-0350. (Dec '91) [MF#1217]

**Barneyscan CIS 3515 🐭🐭🐭🐭**
This slide scanner is easy to set up and has short scan times. Excellent software. Unit requires regular calibration. Requires Mac II series for color work. $4,495. Barneyscan Corp., P.O. Box 14467, Oakland, CA 94614. 510-562-2480. (Sept '90) [MF#1218]

**Complete PC Half-Page Scanner/400 🐭🐭🐭½**
This hand-held scanner has very good resolution. True 400-dpi scans. Excellent OCR. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later and System 6.03 or later. $399. Complete PC, 1983 Concourse Dr., San Jose, CA 95131. 800-634-5558 or 408-434-0145. (Sept '90) [MF#1219]

**Hewlett-Packard ScanJet IIc 🐭🐭🐭🐭½**
The ScanJet IIc is a fast, affordable, 400-dpi color flatbed scanner. Provides accurate color rendition and can interpolate to a resolution of 1,600 dpi. Standard resolution is excellent for use in OCR. Bundled DeskScan II software has handy self-installer and makes calibration or contrast correction a breeze. Requires 24-bit-color display system. $1,995; automatic sheet feeder, $695. Hewlett-Packard Co., 5301 Santa Clara Blvd., Customer Information Center (MS #51-LSD), Santa Clara, CA 95022. 800-752-0900 or 408-725-8900. (Apr '92) [MF# 1220]

**Howtek Personal Color Scanner 🐭🐭🐭**
This 24-bit 300-dpi flatbed color scanner has a maximum image area of 8.5 x 14 inches. Has fast-scan mode for preliminary setup before final scan. Normal-scan mode has better quality but is very slow. Comes with a Centronics NuBus interface and cable. Maximum software-interpolated resolution is 600 dpi for color scans and line art. Software has color-preview mode. Requires NuBus-capable Mac and 24-bit-color display system. $1,295 direct. Howtek, Inc., 21 Park Ave., Hudson, NH 03051. 800-444-6983 or 603-882-5200. (Dec '91) [MF#1221]

**Howtek Scanmaster 🐭🐭🐭🐭**
This color flatbed scanner is very large and slow. Scans at up to 300 dpi. Has powerful color controls in software. Poor OCR. Includes interface kit and Photoshop. Version 1.0 reviewed. Version 3 (400-dpi resolution) shipping. Requires Mac II series or higher with color monitor. $8,195. Howtek, Inc., 21 Park Ave., Hudson, NH 03051. 800-444-6983 or 603-882-5200. (Sept '90) [MF#1222]

**La Cie Silverscanner 🐭🐭🐭🐭**
This 24-bit 300-dpi flatbed color scanner has a maximum image area of 8.5 x 11.7 inches. Colors suffer from Epson scan engine, but powerful software provides complete image control. Includes plug-ins for Photoshop, ColorStudio, Digital Darkroom, ImageStudio, and RagTime. Maximum software-interpolated resolution is 1,200 dpi for color scans and line art. Version 1.4 plug-in modules reviewed. Requires Mac Plus or later with 4 MB of RAM. Bundled with either Photoshop or ColorStudio, $1,799; with Color It!, $1,399. La Cie Ltd., 8700 S.W. Creek–side Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Dec '91) [MF#1223]

**Microtek ScanMaker 600ZS 🐭🐭🐭½**
This 24-bit 300-dpi flatbed color scanner has a maximum image area of 8.5 x 13.5 inches. Mediocre scan quality, but bundled Photoshop 2.0 can adjust scans. Includes DA scanning software and Photoshop plug-in. Maximum software-interpolated resolution is 600 dpi for color scans and line art. External SCSI termination. Requires Mac with 24-bit-color display system. $1,995. Microtek Lab, Inc., 680 Knox St., Torrance, CA 90502. 800-654-4160 or 213-321-2121. (Dec '91) [MF#1224]

**Nikon LS-3500 🐭🐭🐭🐭½**
This slide scanner needs friendlier software, but it wins overall for resolution flexibility and for the wide range of controls offered. Focusing and calibration are automatic. High resolution and offers variable input resolution. Requires Mac II series with 2 MB of RAM. Version LS-3500 reviewed. Version LS-3510AF shipping. 8-bit version, $9,535; 12-bit version, $11,316. Nikon, 1300 Walt Whitman Rd., Melville, NY 11747. 800-526-4566 or 516-547-4355. (Sept '90) [MF#1225]

**Niscan Spectra Mac 🐭🐭🐭½**
This 24-bit 200-dpi portable flatbed color scanner allows a maximum image area of 4 x 6 inches. Compact and offers good scan quality for a portable scanner. Uses serial interface and modem cable. Extremely slow. Maximum software-interpolated resolution is 400 dpi for color scans and line art. Requires Mac SE or higher and third-party modem (serial) cable. $995. NISCA, Inc., 1919 Old Denton Rd., Ste. 104, Carrollton, TX 75006. 800-245-7226 or 214-242-9696. (Dec '91) [MF# 1226]

**PC Scan 3000 🐭🐭🐭🐭**
This flatbed scanner has excellent 300-dpi resolution. Has very even illumination and 8-bit gray-scale capability. Requires Mac Plus or later. Scanner with imaging software only, $1,275; bundled with Publish Pac and Recognize! OCR software, $1,395. DEST, 1015 E. Brokaw Rd., San Jose, CA 95131. 408-436-2700. (Sept '90) [MF# 1227]

**Sharp JX-300 Business Color Scanner 🐭🐭🐭🐭**
This 24-bit 300-dpi flatbed color scanner has a maximum image area of 8.5 x 11.66 inches. Good color-scan quality, with accurate rendition. Comes with GPIB NuBus card and cable for Mac interface. Maximum software-interpolated resolution is 300 dpi for color scans and line art. Requires NuBus-capable Mac and a 24-bit-color display system. $2,915. Sharp Electronics Corp., Sharp Plaza, Mahwah, NJ 07430. 800-237-4277 or 201-529-8200. (Dec '91) [MF#1228]

**Tamarack ArtiScan TTi 3000C 🐭🐭🐭🐭**
This 24-bit 300-dpi flatbed color scanner has a maximum image area of 8.5 x 11.75 inches. Fast. Offers good color quality. Confusing software interface. Internal SCSI termination. Maximum software-interpolated resolution is 300 dpi for color scans and line art. Requires Mac II series or higher with 2 MB of RAM, System 6.04 or later, a hard-disk drive, and a 24-bit-color display system. $1,345. Artix Technologies, Inc. (Tamarack Telecom), 1544 Centre Pointe Dr., Milpitas, CA 95035. 800-643-0666 or 408-956-0144. (Dec '91) [MF#1229]

**ThunderScan Plus 🐭🐭🐭🐭**
The ThunderScan was the original Mac scanner. Slowly scans only materials that can be fed through a printer. Excellent software. Can scan up to 32 levels of gray. Version 1.0.5 reviewed. Version 1.3 shipping. Requires Mac Plus or later and ImageWriter or ImageWriter II; requires separate power supply for use with Mac II series. $249. Thunderware, Inc., 21 Orinda Way, Orinda, CA 94563. 800-445-1166 or 510-254-6581. (Mar '90) ★ '85 Eddy [MF# 1230]

**Thunderware LightningScan 400 🐭🐭🐭🐭½**
This hand-held gray-scale scanner combines good hardware performance and excellent software. Scans at up to 400 dpi. Snap-on guide. Externally terminated SCSI box. Requires Mac Plus or later. $495; ThunderWorks 1.3 software upgrade, $24. Thunderware, Inc., 21 Orinda Way, Orinda, CA 94563. 800-445-1166 or 510-254-6581. (Sept '90) [MF#1231]

**UMAX UC630 🐭🐭🐭🐭**
This 24-bit flatbed color scanner has a maximum image area of 8.5 x 14 inches. Resolution is 300 x 600 dpi. Fast. Offers good color quality and registration. Internal SCSI termination, and only one port is provided. Bundled with Photoshop 2.0 plus Photoshop plug-in. Maximum software-interpolated resolution is 600 dpi for color scans and line art. Requires Mac Plus or later with 4 MB of RAM. $1,995. UMAX Technologies, Inc., 3170 Coronado Dr., Santa Clara, CA 95054. 800-562-0311 or 408-982-0771. (Dec '91) [MF#1232]

**Varityper 1200 🐭🐭🐭🐭**
High-resolution 400-dpi scanner with excellent OCR capabilities. Powerful software controls. Price includes Mac IIx. Requires Mac IIx with 8 MB of RAM. $29,000. Varityper, 11 Mt. Pleasant Ave., East Hanover, NJ 07936. 800-631-8134 or 201-887-8000. (Sept '90) [MF#1233]

## SPREADSHEETS & NUMERICAL ANALYSIS

**BiPlane 🐭🐭🐭🐭🐭**
This budget spreadsheet program offers an incredible array of features, including charting capability. Includes DA version. Perfect for basic number munching if you already have or don't need integrated word-processing, database, and graphics tools. Version 2.03 reviewed. Version 2.07 shipping. Requires Mac Plus or later. $59 direct. Night Diamonds Software, P.O. Box 1608, Huntington Beach, CA 92647. 714-842-2492. (Oct '91) [MF#1234]

**CA-Cricket Graph 🐭🐭🐭½**
CA-Cricket Graph was a top-notch charting program when it came out long ago. Still provides good quality-control charts and mathematical-manipulation capabilities. Version 1.32 reviewed. Version 2.0 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $129. Computer Associates International, Inc., One Computer Associates Plaza, Islandia, NY 11788. 800-531-5236 or 516-342-5224. (July '92) ★ '86 Eddy [MF#1235]

**Data Desk 🐭🐭🐭🐭**
This business-statistics package, is excellent for sophisticated analyses. Features great exploratory interactive graphics and solid data handling. Easy to use. Version 3.0 reviewed. Requires Mac 512Ke or later and System 4.1 or later. $595. Data Description, P.O. Box 4555, Ithaca, NY 14852. 607-257-1000. (Apr '90) [MF#1236]

**DataMerge 🐭🐭🐭🐭**
DataMerge simplifies manipulating tabular data. It works with all major spreadsheet programs and can merge as many as nine files. The files can be larger than existing RAM. Excellent performance. Version 2.0 reviewed. Version 2.03 shipping. Requires Macintosh Plus or later. $99 direct. Seawell MicroSystems, Inc., 3808 39th Ave. S.W., Seattle, WA 98116. 206-322-3123. (May '90) [MF#1237]

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**DataPivot 🐭🐭🐭🐭**
DataPivot is an intuitive, easy-to-use program for data analysis. Lets you create a variety of cross-tabular reports from the same worksheet or data record without the arduous task of writing complex spreadsheet formulas and macros. Provides many simple report formats and views of numerical or textual data. Automatically recalculates formulas and totals when you pivot a report by interchanging columns and rows. Documentation is poorly organized. Version 1.03 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive; minimum 4 MB of RAM and 68030 CPU recommended. $299. Brio Technology, 444 Castro St., Ste. 810, Mountain View, CA 94041. 415-961-4110. (May '92) ★ '91 Eddy [MF#1238]

**DeltaGraph Professional 🐭🐭🐭🐭🐭**
DeltaGraph Pro is a powerful color charting and graphics tool. Creates many types of 2-D and striking 3-D charts. Easy to use and can import data from most sources. Has fairly complete spreadsheet features, but real strength is transforming imported spreadsheets into high-quality color business graphics. Good graphics exporting. Slide-show presentation module supports QuickTime movies and digitized sound. Version 2.0 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $295. DeltaPoint, Inc., 2 Harris Court, Ste. B-1, Monterey, CA 93940. 800-367-4334 or 408-648-4000. (July '92) ★ '87, '89 Eddy [MF#1239]

**digiMatic 🐭🐭🐭🐭½**
digiMatic analyzes chart graphics displayed on-screen in other programs. Transparent chart taped to screen or paper chart on digitizing tablet can also be used as template. Saves extracted numerical data in tab-delimited format. Has no automatic mode, but this simple DA is fast and easy to use. Version 1.02 reviewed. Requires Mac Plus or later and System 6.03 or later. $229. Famous Engineer Brand Software, 4855 Finlay St., Richmond, VA 23231. 804-222-2215. (Nov '91) [MF#1240]

**FlexiTrace 🐭🐭🐭🐭½**
FlexiTrace automatically converts digitized chart graphics into numerical data. Saves extracted data in tab-delimited format. Handles line, column, area, and scatter charts. Charts are imported as scanned images or by selecting, copying, and pasting from other applications. Reads PICT files. To assure correct chart alignment before data extraction, clever plumb-bob tool rotates imported graphics. Easy-to-use tools and filters speed necessary process of cleaning up graphics before conversion. Version 1.01 reviewed. Version 1.03 shipping. Requires Mac Plus or later. $249. Tree Star, Inc., 116 Memory Ln., Campbell, CA 95008. 800-366-6045 or 408-371-8343. (Nov '91) [MF#1241]

**GraphMaster 🐭🐭🐭🐭½**
GraphMaster is a powerful color charting tool with many useful features for presenting a variety of 2-D or striking 3-D graphs. Good editing tools and built-in programming language. Can save documents as PICT or Illustrator files. Imports data in many formats and can export tabbed text, CSV, and SYLK files. Version 1.31 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $295. Visual Business Systems, Inc., 380 Interstate N. Pkwy., Ste. 190, Atlanta, GA 30339. 404-956-0325. (July '92) [MF#1242]

**Igor 🐭🐭🐭🐭**
This data-visualization and -analysis program offers a reasonably complete set of options and tests. Doesn't have all the data-manipulation features of a statistics program but can define anything mathematically. Version 1.1 reviewed. Version 1.25 shipping. Requires 1 MB of RAM, System 4.2 or later, and a hard-disk drive. $295 direct. WaveMetrics, P.O. Box 2088, Lake Oswego, OR 97035. 503-620-3001. (June '90) [MF#1243]

**JMP 🐭🐭🐭🐭½**
JMP is an innovative, versatile business-statistics package. Provides good data-management and exploratory interactive-graphics tools. An excellent choice for knowledgeable users of statistical software who are looking for flexible data analysis. Version 2.0 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $695 direct; educational and volume discounts available. SAS Institute, Inc., SAS Campus Dr., Cary, NC 27513. 919-677-8000. (Mar '92) [MF# 1244]

**KaleidaGraph 🐭🐭🐭🐭**
KaleidaGraph is a superb dedicated graphing and analysis package. Data can be entered on a 256-column-by-32,000-row spreadsheet. Exceptionally nice output. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later and System 6.05 or later. $249. Synergy Software, 2457 Perkiomen Ave., Reading, PA 19606. 800-876-8376 or 215-779-0522. (Feb '90) [MF#1245]

**LabVIEW 🐭🐭🐭🐭🐭**
LabVIEW is a graphical programming environment for creating applications that manage data-acquisition, robotics, and machine-control operations. Data analysis includes complex math and signal processing. One of the best-designed and most efficient systems for creating "virtual" instruments. Version 2.1 reviewed. Version 2.2 shipping. Requires 4 MB of RAM and a hard-disk drive. $1,995; run-time version, $495. National Instruments Corp., 6504 Bridge Point Pkwy., Austin, TX 78730. 800-433-3488 or 512-794-0100. (May '91) ★ '90 Eddy [MF#1246]

**Lotus 1-2-3 for Macintosh 🐭🐭🐭🐭½**
This powerful spreadsheet package has easy, precise charting capabilities. Has a clean, highly customizable Mac interface. Allows in-cell editing of values and formulas. Features a unique 3-D-worksheet function that lets you incorporate multiple worksheets into a single document. Includes DataLens technology, which supports Apple's DAL and can access information in DB2, FoxBASE+, and SQL formats. Can provide the traditional 1-2-3 command-line interface for DOS veterans. Version 1.0 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $495. Lotus Development Corp., 55 Cambridge Pkwy., Cambridge, MA 02142. 800-688-8320 or 617-577-8500. (June '92) [MF#1247]

**MacCalc 🐭🐭🐭**
This low-end spreadsheet program has good data-analysis tools. Streamlined user interface has good help and search functions but uses nonstandard rolling menus. Excel, MultiPlan, or Lotus 1-2-3 models can be converted into MacCalc format. No charting capability. Version 1.2 reviewed. Requires Mac Plus or later. $139. Bravo Technologies, Inc., P.O. Box 10078, Berkeley, CA 94709. 510-841-8552. (Oct '91) ★ '86 Eddy [MF#1248]

**MacGraphX 🐭🐭🐭½**
MacGraphX is a capable charting package that lacks many sophisticated features but provides some unique goodies. Its complex but versatile data-import interface lets you select subsets of data before importing and can combine data from several sources. Includes separate program that correctly imports data from mainframe applications using fixed field lengths. Exports charts only through the Clipboard or as PICT files. Version 1.0 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $199. Bravo Technologies, Inc., P.O. Box 10078, Berkeley, CA 94709. 510-841-8552. (July '92) [MF#1249]

**MacSpin 🐭🐭🐭🐭**
MacSpin is a powerful program for graphic data analysis. Handles multivariate data in a highly visual manner. Version 1.0 reviewed. Version 3.01 shipping. Requires Mac Plus or later. $295. Abacus Concepts, 1984 Bonita Ave., Berkeley, CA 94704. 800-666-7828 or 510-540-1949. (June '86) ★ '87 Eddy [MF#1250]

**Mathcad 🐭🐭🐭🐭**
Mathcad is a solid math processor for equation solvers. Creates charts, although its data-handling ability is somewhat limited. Version 2.02 reviewed. Version 2.06 shipping. Requires Mac Plus or later. $495. MathSoft, Inc., 201 Broadway, Cambridge, MA 02139. 800-628-4223 or 617-577-1017. (Apr '90) [MF#1251]

**Mathematica 🐭🐭🐭🐭½**
Mathematica is a powerful tool for doing all kinds of math. Offers arbitrary-precision numerical calculations, symbolic computation, PostScript graphics, and programmability. Enhanced version requires math coprocessor and provides advanced features. Version 1.03 reviewed. Version 2.0 shipping. Requires System 6.07 or later, 4 MB of RAM, and a hard-disk drive. $595; enhanced version, $895. Wolfram Research, Inc., 100 Trade Center Dr., Champaign, IL 61820. 800-441-6284 or 217-398-0700. (Nov '88) ★ '88 Eddy [MF#1252]

**MathType 🐭🐭🐭½**
MathType is a mathematical-equation-writing program. Can be installed as either a DA or an application. Inconvenient to use with text-heavy equations. Version 2.11 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 6.03 or later. $199. Design Science, Inc., 4028 Broadway, Long Beach, CA 90803. 800-827-0685 or 310-433-0685. (July '90) [MF#1253]

**Microsoft Excel 🐭🐭🐭🐭🐭**
Microsoft Excel is a full-featured high-end spreadsheet package. Incorporates a multipurpose tool bar and major interface improvements. Has global search-and-replace and rows-into-columns transposition. Integral linking within documents or to other documents. Customizes menus and creates dialog and alert boxes. Strong statistical functions and matrix-math abilities. Has enhanced graphics and charting capabilities. Cumbersome interface. Powerful outlining, macro programming, and style sheets. Ideal for creating either small worksheets or large sophisticated systems. Version 3.0 reviewed. Version 4.0 shipping. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $495. Microsoft Corp., One Microsoft Way, Redmond, WA 98052. 800-426-9400 or 206-882-8080. (June '92) ★ '85 Eddy [MF#1254]

**Milo 🐭🐭🐭🐭½**
Milo is a flexible mathematics application that's more than just an equation writer. Lets you include text blocks as large as 32K in text fields, with no limit on the number of text fields in a document. Also features numerous tables of financial, physical, and astronomical relationships. Five helpful tutorials included. Version 1.0 reviewed. Requires Mac Plus or later. $195. Macromedia, Inc., 600 Townsend St., Ste.

**MICE RATINGS** ....... 🐭 ........ 🐭½ ............ 🐭🐭 ............. 🐭🐭½ ............... 🐭🐭🐭 ............. 🐭🐭🐭½ ............ 🐭🐭🐭🐭 ........... 🐭🐭🐭🐭½ .............. 🐭🐭🐭🐭🐭

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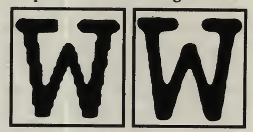

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310W, San Francisco, CA 94103. 415-442-0200. (July '90) [MF# 1255]

**Minitab 🐭🐭🐭½**
Minitab is a fast, high-end statistics package that can share data with the popular PC-, minicomputer-, and mainframe-based versions of this program. Broad range of statistical procedures should satisfy all but the most technically advanced users. Retooled interface is significant improvement over previous versions, but scrolling Session window and character-based command structure still dominate. Adds standard Mac menus and dialog boxes for accessing all but the program's most complex functions. New spreadsheetlike Data Editor facilitates data entry and editing. Creates adequate graphs and charts, but these do not automatically update as source data changes. Version 8.2 reviewed. Requires Mac Plus or later with hard-disk drive; Mac II series or higher recommended. $695; academic discounts available. Minitab, Inc., 3081 Enterprise Dr., State College, PA 16801. 800-448-3555 or 814-238-3280. (June '92) [MF#1256]

**MUSE 🐭🐭🐭🐭**
MUSE blends elements of spreadsheet and database software into a unique program that explores multidimensional data in a variety of ways. Searching for specified information and subsequent manipulation of data is easy. Natural query language uses English-like commands in a script-writing window. Built-in dictionary enables program to interpret user queries. Interface is often confusing. Provides basic charting and simple animations. Imports files in many formats, including Excel 3.0, WKS, WK1, DBF, DIF, SYLK, and text files using standard database delimiters. Proper organization of data before importing is crucial and may require expert assistance. Good documentation. Version 1.01 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $695. Occam Research, 42 Pleasant St., Watertown, MA 02172. 617-923-3545. (July '92) [MF# 1257]

**Parameter Manager Plus 🐭🐭🐭🐭**
Parameter Manager Plus analyzes data in real time, using a spreadsheetlike interface. Handles both hand-entered and imported data. Includes statistical quality control, equation fitting, predictive maintenance, histograms, drawing, and presentation. Version 3.0 reviewed. Version 3.5 shipping. Requires Mac Plus or later. $795. BlackHawk Technology, P.O. Box 2013, Morgan Hill, CA 95038. 800-528-9333 or 408-776-1106. (July '89) [MF#1258]

**Resolve 🐭🐭🐭🐭½**
Resolve is a spreadsheet program that offers an elegant interface and accessible 3-D-charting features. Lacks a few sophisticated features (such as style sheets) found in Excel 3.0 but uses a straightforward scripting language unlike Excel's complex macros. Includes MacDraw-like drawing tools. Auto-Save option can back up worksheets automatically. Supports wide variety of file formats for importing and exporting data. Good documentation and on-line context-sensitive help. Despite some tedious limitations, ideal for custom-built complex applications or for users of other Claris products. Version 1.0v3 reviewed. Version 1.1 shipping. Requires Macintosh Plus or later, System 6.02 or later, and a hard-disk drive, $399. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (June '92) [MF# 1259]

**@Risk 🐭🐭🐭½**
This add-in for Excel provides Monte Carlo simulation. Risk-analysis functions and a series of new menus give you an accurate picture of how even the most uncertain estimates and projections are likely to affect your business. Generates summary Excel worksheets with statistical information for all output cells. Charting capabilities are adequate. Interface is difficult but offers integration with standard Excel environment. Version 1.01 reviewed. Requires Excel 3.0 or higher. $395. Palisade Corp., 31 Decker Rd., Newfield, NY 14667. 800-432-7475 or 607-277-8000. (Apr '92) [MF#1260]

**SPSS for the Macintosh 🐭🐭🐭🐭**
SPSS for the Macintosh provides most of the procedures needed by professional statistical analysts. Has excellent on-line help, useful Command Generator, and clear documentation. Non-Mac interface. Version 4.0 shipping. Requires 2 MB of RAM and a hard-disk drive. $795; Advanced Statistics, Trends, Table, and Categories modules, $395 each. SPSS, 444 N. Michigan Ave., Chicago, IL 60611. 312-329-3300. (Nov '90) [MF#1261]

**Spyglass Transform 🐭🐭🐭🐭½**
This data-analysis package lets you display huge arrays of numbers as pictures. Can draw complex 3-D color surfaces, contours, and vector plots. Includes Spyglass View, which creates animations of data evolving over time. Operates as a stand-alone application or with Spyglass Dicer and Spyglass Format. Requires some knowledge of FORTRAN. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac II or SE/30 with an 8-bit-video display, System 6.03 or later, and a hard-disk drive. $495; educational and volume discounts available. Spyglass, Inc., 701 Devonshire Dr., Box C-17, Champaign, IL 61820. 217-355-1665. (Sept '91) ★ '91 Eddy [MF#1262]

**StatView II 🐭🐭🐭🐭**
StatView II is a complete data-analysis package. Excellent for any kind of descriptive, comparative, or multivariate statistics. Version 1.0 reviewed. Version 1.04 shipping. Requires Mac SE/30, or II series or higher with FPU. $495. Abacus Concepts, 1984 Bonita Ave., Berkeley, CA 94704. 800-666-7828 or 510-540-1949. (Apr '90) [MF#1263]

**SuperANOVA 🐭🐭🐭🐭½**
SuperANOVA is a slick linear-modeling program with a great interface. Feature-laden and powerful. Version 1.0 reviewed. Version 1.11 shipping. Requires Mac Plus and System 6.03 or later. $495. Abacus Concepts, 1984 Bonita Ave., Berkeley, CA 94704. 800-666-7828 or 510-540-1949. (Mar '90) ★ '89 Eddy [MF#1264]

**SYSTAT for the Macintosh 🐭🐭🐭🐭**
This statistics program has a good Macintosh interface. Some slow and awkward data- and variable-handling features. Version 5.0 reviewed. Version 5.2 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $895; Design, Logit, Probit, and Testat modules, $110 each. Systat, Inc., 1800 Sherman Ave., Evanston, IL 60201. 708-864-5670. (Nov '90) [MF#1265]

**Theorist 🐭🐭🐭🐭🐭**
Theorist is an elegant equation solver that's versatile, full-featured, and powerful. There are no procedures — everything is done with user-created propositions that are easy to build. Superb interface. Version 1.01 reviewed. Version 1.1 shipping. Requires Mac Plus or later. $399.95. Prescience Corp., 939 Howard St., San Francisco, CA 94103. 800-827-6284 or 415-543-2252. (June '90) ★ '89 Eddy [MF#1266]

**Wingz 🐭🐭🐭½**
Wingz is a high-end spreadsheet program with strong 3-D-charting features. HyperScript language lets you change menus, options, and functions by editing the master script file. Requires a lot of custom macro programming to perform linking operations. Version 1.0 reviewed. Version 1.1a shipping. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $399. Informix Software, Inc., 4100 Bohannon Dr., Menlo Park, CA 94025. 800-438-7627 or 415-926-6300. (July '90) ★ '89 Eddy [MF#1267]

**WorkBenchMac 🐭🐭🐭🐭½**
WorkBenchMac (formerly Analog Connection Workbench) is an icon-based application generator for general-purpose data acquisition, control, and analysis. Users create flow diagrams that make live color plots. Powerful and easy to use. Version 3.0 reviewed. Version 3.0.6 shipping. Requires Mac SE or later. $995. Strawberry Tree, Inc., 160 S. Wolfe Rd., Sunnyvale, CA 94086. 408-736-8800. (July '89) [MF#1268]

## STORAGE SYSTEMS

**ATTO SiliconDisk Pro 🐭🐭🐭🐭½**
This large high-performance dedicated RAM disk has access times 300 times as fast as an average SCSI hard-disk drive. Easy to hook up and use. Extremely fast for applications requiring intensive throughput from SCSI drive. Data disappears when power is turned off, so uninterruptible power supply may be advisable. Requires Macintosh Plus or later. $4,995 to $59,995. ATTO Technology, Inc., 1576 Sweet Home Rd., Amherst, NY 14228. 716-688-4259. (Feb '90) [MF#1269]

**DiskTwin 🐭🐭🐭🐭½**
DiskTwin simultaneously and transparently writes data to two SCSI drives, thereby providing up-to-the-nanosecond backup. Consists of proprietary software and either a NuBus or PDS card. Hardware operates independently of Mac's SCSI chain. Version 2.0 reviewed. Version 2.0r6 shipping. Requires PDS- or NuBus-capable Mac. $995. Golden Triangle Computers, Inc., 4849 Ronson Ct., San Diego, CA 92111. 800-326-1858 or 619-279-2100. (Nov '91) [MF# 1270]

**Technology Works 3-Meg Static RAM Card 🐭🐭🐭🐭🐭**
The 3-Meg Static RAM Card is an excellent, even necessary, addition to every Mac Portable. With true static RAM, the Portable's battery lasts longer in Sleep mode. Easy to install. Lifetime warranty. Requires Mac Portable. $995. Technology Works, Inc., 4030 Braker Lane W., Ste. 350, Austin, TX 78759. 800-688-7466 or 512-794-8533. (Oct '90) [MF#1271]

## STORAGE SYSTEMS/ HARD-DISK DRIVES

**Apple Hard Disk 80SC 🐭🐭🐭🐭½**
The Hard Disk 80SC is a superbly designed and well-built 80-MB unit. $1,099. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. 800-776-2333 or 408-996-1010. (Feb '90) [MF# 1272]

**APS 1 Gigabyte 🐭🐭🐭🐭**
The APS 1 Gigabyte hard-disk drive has a formatted capacity of 988 MB and an average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Includes 18 MB of shareware. $2,099 direct. APS (Alliance Peripheral Systems), 2900 S. 291 Hwy., Independence, MO 64057. 800-235-2750 or 816-478-8300. (July '91) [MF#1273]

**APS Maxtor 213 ZFP 🐭🐭🐭🐭**
This affordable SCSI hard-disk drive is well built, includes good SCSI cable, and has good documentation. Average performance.

MICE RATINGS ....... 🐭 ........ 🐭½ ............ 🐭🐭 ............ 🐭🐭½ .............. 🐭🐭🐭 ............ 🐭🐭🐭½ ............ 🐭🐭🐭🐭 ........... 🐭🐭🐭🐭½ ............. 🐭🐭🐭🐭🐭

FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

Internal mechanism is Maxtor LXT-213SY. Actual capacity with included Alliance Power Tools formatter is 200.6 MB. Bundled with 18 MB of shareware. Two-year warranty. Version 2.06 software reviewed. $689 direct. APS (Alliance Peripheral Systems), 2900 S. 291 Hwy., Independence, MO 64057. 800-235-2750 or 816-478-8300. (Apr '92) [MF#1274]

**APS Quantum 210 Portable 🐁🐁🐁½**
This affordable, compact SCSI hard-disk drive includes good SCSI cable and has good documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Alliance Power Tools formatter is 197.3 MB. Bundled with 18 MB of shareware. Two-year warranty. Version 2.06 software reviewed. $699 direct. APS (Alliance Peripheral Systems), 2900 S. 291 Hwy., Independence, MO 64057. 800-235-2750 or 816-478-8300. (Apr '92) [MF#1275]

**APS Quantum 210 ZFP 🐁🐁🐁🐁**
This affordable, well built SCSI hard-disk drive includes good SCSI cable and has good documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Alliance Power Tools formatter is 197.3 MB. Bundled with 18 MB of shareware. Two-year warranty. Version 2.06 software reviewed. $699 direct. APS (Alliance Peripheral Systems), 2900 S. 291 Hwy., Independence, MO 64057. 800-235-2750 or 816-478-8300. (Apr '92) [MF#1276]

**Aurora 100MB Quantum External 🐁🐁🐁½**
This affordable external hard-disk drive uses a Quantum LP105S internal mechanism and offers fast performance. Large case has poor construction. Actual formatted capacity is 101 MB. Bundled with 5 MB of shareware. Formatting utility is Software Architects 3.29 Rel 101. Two-year warranty. $736. Aurora Industries, 60 Skiff St., Ste. 1011, Hamden, CT 06517. 800-426-1591 or 203-624-9018. (Nov '91) [MF#1277]

**CMS PD1000S 🐁🐁🐁🐁**
The CMS PD1000S is a 1-gigabyte hard-disk drive with a formatted capacity of 990 MB and an average seek time of 15 milliseconds. Based on the Micropolis 1598-15 mechanism. Provides good performance with the CMS Utility 6.0.1 SCSI driver. Bundled with SUM. $7,199. CMS Enhancements, Inc., 2722 Michelson Dr., Irvine, CA 92715. 714-222-6000. (July '91) [MF#1278]

**CMS Platinum 200 🐁🐁🐁½**
This SCSI hard-disk drive has average construction. Slow performance. Good documentation and formatting software. Internal mechanism is Conner CP-3200F. Actual capacity with included CMS Utilities formatter is 200.9 MB. Bundled with SUM II. Version 7.02 software reviewed. $1,639. CMS Enhancements, Inc., 2722 Michelson Dr., Irvine, CA 92715. 714-222-6000. (Apr '92) [MF#1279]

**Cutting Edge 207 MB 🐁🐁🐁½**
This SCSI hard-disk drive is well built. Poor formatting software. Good performance. Internal mechanism is Maxtor LXT-213SY. Actual capacity with included CE HDD Formatter software is 200.6 MB. $1,119. Cutting Edge, 97 S. Red Willow Rd., P.O. Box 1259, Evanston, WY 82931. 307-789-3830. (Apr '92) [MF#1280]

**Cutting Edge 210 MB 🐁🐁🐁½**
This SCSI hard-disk drive is well built. Poor formatting software. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included CE HDD Formatter software is 197.3 MB. $1,279. Cutting Edge, 97 S. Red Willow Rd., P.O. Box 1259, Evanston, WY 82931. 307-789-3830. (Apr '92) [MF#1281]

**Deltaic Server 100Q 🐁🐁🐁½**
This external hard-disk drive uses a Quantum LP105S internal mechanism. Average performance. Actual formatted capacity is 100 MB. Formatting utility provided is Deltaic System Installer 2.01. $699 direct. Deltaic Systems, 1701 Junction Ct., Ste. 302B, San Jose, CA 95112. 800-745-1240 or 408-441-1240. (Nov '91) [MF#1282]

**Deltaic Server 200Q 🐁🐁🐁½**
This affordable SCSI hard-disk drive is well built but has an unshielded power supply. Good documentation and performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Deltaic System Installer formatter is 197.3 MB. Two-year warranty. $749 direct. Deltaic Systems, 1701 Junction Ct., Ste. 302B, San Jose, CA 95112. 800-745-1240 or 408-441-1240. (Apr '92) [MF#1283]

**DynaTek HDA 234 🐁🐁🐁½**
This fast SCSI hard-disk drive is well built but has an unshielded power supply. Internal mechanism is Hewlett-Packard C2233. Actual capacity with included Com-Pass Utilities formatter is 221.6 MB. Two-year warranty. $1,329. DynaTek Automation Systems, Inc., 15 Tangiers Rd., Toronto, Ontario M3J 2B1, Canada. 416-636-3000. (Apr '92) [MF#1284]

**Ehman 105Q LPS 🐁🐁🐁½**
This external hard-disk drive uses a Quantum LP105S internal mechanism. Fast performance. Actual formatted capacity is 101 MB. Formatting utility provided is Software Architects 3.29 Rel 210. $489 direct. Ehman Engineering, Inc., 97 S. Red Willow Rd., P.O. Box 2126, Evanston, WY 82931. 800-257-1666 or 307-789-3830. (Nov '91) [MF#1285]

**Ehman 207 MB 🐁🐁🐁½**
This affordable SCSI hard-disk drive is well built. Good performance and documentation. Internal mechanism is Maxtor LXT-213SY. Actual capacity with included Ehman HDD Formatter software is 200.6 MB. Two-year warranty. $699 direct. Ehman Engineering, Inc., 97 S. Red Willow Rd., P.O. Box 2126, Evanston, WY 82931. 800-257-1666 or 307-789-3830. (Apr '92) [MF#1286]

**Ehman 210 MB 🐁🐁🐁½**
This affordable SCSI hard-disk drive is well built. Good performance and documentation. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Ehman HDD Formatter software is 197.3 MB. Two-year warranty. $799 direct. Ehman Engineering, Inc., 97 S. Red Willow Rd., P.O. Box 2126, Evanston, WY 82931. 800-257-1666 or 307-789-3830. (Apr '92) [MF#1287]

**Ehman HD 40 🐁🐁🐁🐁**
This 40-MB external SCSI hard-disk drive is based on the fast, reliable Quantum P40S mechanism. Good performance. $429. Ehman Engineering, Inc., 97 S. Red Willow Rd., P.O. Box 2126, Evanston, WY 82931. 800-257-1666 or 307-789-3830. (Apr '91) [MF#1288]

**FWB Hammer 300 🐁🐁🐁🐁½**
The FWB Hammer 300 is a hard-disk drive with a formatted capacity of 323 MB. Short seek times and high throughput rate. Good for equipping a network server. $2,259. FWB, Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (Dec '90) [MF#1289]

**FWB PocketHammer 100 🐁🐁🐁🐁**
This portable hard-disk drive uses a Quantum LP105S internal mechanism and offers fast performance. Actual formatted capacity is 100 MB. Bundled with Hard Disk Partition and Hard Disk Deadbolt software. Formatting utility provided is Hammer Install 1.4a. $929. FWB, Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (Nov '91) [MF#1290]

**FWB PocketHammer 200 🐁🐁🐁½**
This compact SCSI hard-disk drive is well built and has excellent documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Hammer Install 1.3d formatter is 197.3 MB. Bundled with Hard Disk ToolKit software. Two-year warranty. $1,749. FWB, Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (Apr '92) [MF#1291]

**FWB PocketHammer50 🐁🐁🐁🐁½**
The well-designed FWB PocketHammer50 is a 50-MB external SCSI hard-disk drive based on the new, fast Quantum LP52S mechanism. Its compact construction doesn't skimp on desirable features. Bundled software is excellent. $699. FWB, Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (Apr '91) [MF#1292]

**GCC UltraDrive 100S 🐁🐁🐁🐁½**
This external hard-disk drive uses a Quantum LP105S internal mechanism and offers fast performance. Actual formatted capacity is 100 MB. Bundled with MacTools Deluxe, QuickEnvelope, QuickSpool, and 3.5 MB of shareware. Formatting utility provided is GCC Drive Manager. $739 direct. GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 800-422-7777 or 617-890-0880. (Nov '91) [MF#1293]

**GCC UltraDrive 430S 🐁🐁🐁🐁🐁**
The GCC UltraDrive 430S is a hard-disk drive with a formatted capacity of 428 MB. High throughput rate. Average seek times. Includes a QuickDraw print spooler, SUM II, 3.5 MB of public-domain software, formatter, and envelope-printing utility. $1,949 direct. GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 800-422-7777 or 617-890-0880. (Dec '90) [MF#1294]

**HDI PowerDrive 1050EMC 🐁🐁🐁½**
This hard-disk drive has a formatted capacity of 990 MB and an average seek time of 15 milliseconds. Based on the Micropolis 1598-15 mechanism. Provides good performance with the Disk Manager Mac 2.23 SCSI driver. Software provides user-selectable-interleave, partitioning, and password-protection functions. $2,199. HDI (Hard Drives International), 1912 W. Fourth St., Tempe, AZ 85281. 800-488-0001 or 602-350-1128. (July '91) [MF#1295]

**HDI PowerDrive 105MB Quantum 🐁🐁🐁½**
This affordable external hard-disk drive uses a Quantum ProDrive 105S internal mechanism. Slow. Actual formatted capacity is 105 MB. $399 direct. HDI (Hard Drives International), 1912 W. Fourth St., Tempe, AZ 85281. 800-488-0001 or 602-350-1128. (Nov '91) [MF#1296]

**HDI PowerDrive 200 (Maxtor) 🐁🐁🐁½**
This affordable SCSI hard-disk drive is well built but has an unshielded power supply. Good performance. Internal mechanism is Maxtor LXT-213SY. Actual capacity with included Disk Manager Mac formatter is 200.7 MB. $679 direct. HDI (Hard Drives International), 1912 W. Fourth St., Tempe, AZ 85281. 800-488-0001 or 602-350-1128. (Apr '92) [MF#1297]

**HDI PowerDrive 200 (Quantum) 🐁🐁🐁½**
This affordable SCSI hard-disk

drive is well built but has an unshielded power supply. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Disk Manager Mac formatter is 197.3 MB. $689 direct. HDI (Hard Drives International), 1912 W. Fourth St., Tempe, AZ 85281. 800-488-0001 or 602-350-1128. (Apr '92) [MF#1298]

**La Cie 1000MB ZFP Plus 🐭🐭🐭🐭**
The La Cie 1000MB ZFP Plus is a 1-gigabyte hard-disk drive with a formatted capacity of 988 MB. Average seek time of15 milliseconds. Based on the Seagate ST41200NM mechanism. Good performance. Software provides password-protection and data-encryption functions. Bundled with Norton Utilities and Silverlining 5.27 SCSI driver. $2,099 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (July '91) [MF#1299]

**La Cie Cirrus 200 🐭🐭🐭🐭**
This SCSI hard-disk drive is well built. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Silverlining formatter is 197.3 MB. Bundled with 10 MB of shareware. Two-year warranty. $999 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Apr '92) [MF#1300]

**La Cie Q-ZFP 200 🐭🐭🐭½**
This SCSI hard-disk drive has adequate construction quality. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Silverlining formatter is 197.3 MB. Bundled with 10 MB of shareware. Two-year warranty. $899 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Apr '92) [MF#1301]

**La Cie Tsunami 105MB 🐭🐭🐭🐭**
This portable hard-disk drive uses a Quantum LP105S internal mechanism and offers fast performance. Actual formatted capacity is 101 MB. Bundled software is Norton Utilities and 10 MB of shareware. Formatting utility provided is Silverlining 5.31. $479 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Nov '91) [MF#1302]

**La Cie Tsunami 200 🐭🐭🐭½**
This portable SCSI hard-disk drive has adequate construction quality. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Silverlining formatter is 197.3 MB. Bundled with 10 MB of shareware. Two-year warranty. $1,049 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Apr '92) [MF#1303]

**La Cie Tsunami 50 🐭🐭🐭🐭½**
This well-designed external 50-MB SCSI hard-disk drive is based on the new, fast Quantum LP52S mechanism. Compact construction allows vertical or horizontal orientation. Bundled software is excellent. This drive has 25-pin SCSI connectors. $339 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Apr '91) [MF#1304]

**La Cie ZFP 400 🐭🐭🐭🐭🐭**
The La Cie ZFP 400 is an affordable hard-disk drive with a formatted capacity of 423 MB. Average seek times and high throughput rate. Bundled with 5 MB of public-domain software, Silverlining formatting software, and Norton Utilities. Good support. $1,499 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Dec '90) [MF#1305]

**Liberty 70210Q 🐭🐭🐭**
This portable SCSI hard-disk drive has adequate construction quality and includes a carrying case but has poor documentation. Good performance. Internal mechanism is Plus Impulse 210S. Actual capacity with included SCSI Director formatter is 197.3 MB. $1,399 direct. Liberty Systems, Inc., 160 Saratoga Ave., Ste. 38, Santa Clara, CA 95051. 408-983-1127. (Apr '92) [MF#1306]

**Loviél M210QUP 🐭🐭🐭**
This portable SCSI hard-disk drive is poorly built but offers good performance. Internal mechanism is Plus Impulse 210S. Actual capacity with included SCSI Director formatter is 197.3 MB. Two-year warranty. $1,299. Loviél Computer Corp., 5174 W. 76th St., Edina, MN 55439. 612-835-3553. (Apr '92) [MF#1307]

**Loviél Maxcess 105e 🐭🐭🐭🐭**
This portable hard-disk drive uses a Quantum LP105S internal mechanism and offers fast performance. Actual formatted capacity is 100 MB. Bundled software is Norton Utilities. Formatting utility provided is SCSI Director 1.7.3. $740. Loviél Computer Corp., 5174 W. 76th St., Edina, MN 55439. 612-835-3553. (Nov '91) [MF#1308]

**MacProducts Magic 1.2 Gigabyte HD 🐭🐭🐭🐭**
This hard-disk drive's formatted capacity of 988 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides good performance with the Disk Manager Mac 2.23 SCSI driver. Software provides backup and password-protection features. Includes 10 MB of shareware. $2,099 direct. MacProducts USA, Inc., 608 W. 22nd St., Austin, TX 78705. 800-622-3475 or 512-472-8881. (July '91) [MF#1309]

**MacProducts Magic 210 🐭🐭🐭½**
This SCSI hard-disk drive is well built. Average performance. Internal mechanism is Plus Impulse 210S. Actual capacity with included Disk Manager Mac formatter is 197.3 MB. Two-year warranty. $830 direct. MacProducts USA, Inc., 608 W. 22nd St., Austin, TX 78705. 800-622-3475 or 512-472-8881. (Apr '92) [MF#1310]

**MacProducts MagicDrive 105LP External 🐭🐭🐭½**
This affordable hard-disk drive uses a Quantum LP105S internal mechanism and offers fast performance. Actual formatted capacity is 101 MB. Bundled with SCSI bus software, StuffIt, Disinfectant, and 10 MB of shareware. Formatting utility provided is Disk Manager Mac 2.24. $399 direct. MacProducts USA, Inc., 608 W. 22nd St., Austin, TX 78705. 800-622-3475 or 512-472-8881. (Nov '91) [MF#1311]

**MacTel HD Index 210 MB 🐭🐭🐭**
This affordable SCSI hard-disk drive has adequate construction quality but poor documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity after formatting with included Index HD Utilities Installer is 197.3 MB. Bundled with Backmatic and AutoSave. Two-year warranty. $749 direct. MacTel Technology, 3007 N. Lamar Blvd., Austin, TX 78705. 800-950-8411 or 512-451-2600. (Apr '92) [MF#1312]

**MacTel Index 105MB 🐭🐭🐭½**
This affordable external hard-disk drive uses a Quantum LP105S internal mechanism. Average performance. Actual formatted capacity is 101 MB. Bundled with BackMatic, AutoSave, and 14 MB of shareware. Formatter provided is Index HD Utilities. $449 direct. MacTel Technology, 3007 N. Lamar Blvd., Austin, TX 78705. 800-950-8411 or 512-451-2600. (Nov '91) [MF#1313]

**MacTown DataStor 210 MB 🐭🐭🐭½**
This affordable SCSI hard-disk drive is well built but has poor documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Dataware formatter is 197.3 MB. $659 direct. MacTown, 1431 S. Cherryvale Rd., Boulder, CO 80303. 800-338-4273 or 303-442-4747. (Apr '92) [MF#1314]

**MacTown DataStor HM1.2/15M 🐭🐭🐭🐭½**
This fast 1-gigabyte hard-disk drive has a formatted capacity of 990 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides very good performance with the StorageWare 1.3b13 SCSI driver. Software provides backup and partitioning capabilities. Version HM1.2/15M reviewed. Version HM1050/15-E shipping. $2,079. MacTown, 1431 S. Cherryvale Rd., Boulder, CO 80303. 800-338-4273 or 303-442-4747. (July '91) [MF#1315]

**MicroNet MS200 🐭🐭🐭½**
This affordable SCSI hard-disk drive is poorly built but includes good SCSI cable and good documentation. Adequate performance. Internal mechanism is Maxtor LXT-213SY. Actual capacity with included MicroNet Utilities 5.17 formatter is 200.7 MB. $1,445. MicroNet Technology, Inc., 20 Mason, Irvine, CA 92718. 714-837-6033. (Apr '92) [MF#1316]

**MicroNet SB-1000NP 🐭🐭🐭🐭½**
This fast 1-gigabyte hard-disk drive has a formatted capacity of 987 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides good performance with the MicroNet Utility 5.0.3 SCSI driver. Software allows password-protection, backup, and A/UX-compatible-partitioning functions. Included SCSI-2 NuPort card optimizes SCSI throughput via NuBus. Requires Mac II series. $5,095. MicroNet Technology, Inc., 20 Mason, Irvine, CA 92718. 714-837-6033. (July '91) [MF# 1317]

**MicroNet SBT-1288NP 🐭🐭🐭🐭½**
This very fast 1-gigabyte hard-disk drive has a formatted capacity of 1,266 MB. Average seek time of 13 milliseconds. Based on a pair of Seagate Wren-Runner 2 mechanisms. Provides good performance with the MicroNet Utility 5.0.3 SCSI driver. Software allows password-protection, backup, and A/UX-compatible-partitioning functions. Included NuPort card optimizes SCSI throughput via NuBus. Requires Mac II series. $9,790. MicroNet Technology, Inc., 20 Mason, Irvine, CA 92718. 714-837-6033. (July '91) [MF#1318]

**Microtech Europa 40 🐭🐭🐭🐭½**
The elegant Microtech Europa 40 is a 40-MB external SCSI hard-disk drive based on the fast, reliable Quantum P40S mechanism. Average performance. Five-year warranty. $569. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (Apr '91) [MF#1319]

**Microtech N320 🐭🐭🐭🐭**
The Microtech N320 is a compact hard-disk drive with a formatted capacity of 330 MB. Average seek times and throughput rate. Good software and support. $2,299. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (Dec '90) [MF#1320]

**Microtech Nova 40 🐭🐭🐭🐭🐭**
This excellent zero-footprint 40-MB hard-disk drive has a sturdy case, a five-year warranty, and automatic head parking. $649. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (Feb '90) [MF#1321]

**MICE RATINGS** ....... 🐭 ........ 🐭½ ........... 🐭🐭 ............. 🐭🐭½ .............. 🐭🐭🐭 ............. 🐭🐭🐭½ ........... 🐭🐭🐭🐭 .......... 🐭🐭🐭🐭½ ............. 🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

**Microtech Nova N1000 🐭🐭🐭🐭**
This hard-disk drive's formatted capacity is 988 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides good performance with the Microtech HDF 3.27 SCSI driver. Bundled software includes Norton Utilities and Total Recall. Five-year warranty. $4,599. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (July '91) [MF# 1322]

**Microtech Nova N120 🐭🐭🐭🐭**
This external hard-disk drive uses a Quantum ProDrive 120S internal mechanism and offers fast performance. Actual formatted capacity is 115 MB. Bundled with Norton Utilities. Formatting utility provided is Microtech HD Formatter V3.29 R202. Five-year warranty. $1,249. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (Nov '91) [MF#1323]

**Microtech Nova N200 🐭🐭🐭½**
This SCSI hard-disk drive is well built but has an unshielded power supply. Has good documentation and good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Hard Disk Formatter is 197.3 MB. Bundled with Norton Utilities. Five-year warranty. $1,699. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (Apr '92) [MF#1324]

**Mirror M210 🐭🐭🐭🐭**
This SCSI hard-disk drive is well built and includes good SCSI cable but has an unshielded power supply. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity formatted with included Mirror Media Manager is 197.3 MB. Bundled with Gofer, Inside Information, and 10 MB of shareware. Two-year warranty. $829 direct. Mirror Technologies, Inc., 2644 Patton Rd., Roseville, MN 55113. 800-654-5294 or 612-633-4450. (Apr '92) [MF#1325]

**Mirror MP105 🐭🐭🐭🐭**
This external hard-disk drive uses a Quantum LP105S internal mechanism. Average performance. Actual formatted capacity is 102 MB. Bundled with MediaManager, Volume Back-Up, and 10 MB of shareware. Formatting utility provided is DK Research 2.04. $497 direct. Mirror Technologies, Inc., 2644 Patton Rd., Roseville, MN 55113. 800-654-5294 or 612-633-4450. (Nov '91) [MF#1326]

**Optima Concorde 1050 🐭🐭🐭🐭**
This hard-disk drive's formatted capacity is 988 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides good performance with the DiskInit 2.1 SCSI driver. Software provides partitioning, password-protection, and file-recovery capabilities. $3,995. Optima Technology, 17526 Von Karman, Irvine, CA 92714. 714-476-0515. (July '91) [MF#1327]

**Optima DisKovery 200 🐭🐭🐭½**
This SCSI hard-disk drive is poorly built. Has good SCSI cable and good documentation. Good performance. Internal mechanism is Maxtor LXT-213SY. Actual capacity with included Optima DiskMount formatter is 200.6 MB. Bundled with disk-mirroring software. $1,895. Optima Technology, 17526 Von Karman, Irvine, CA 92714. 714-476-0515. (Apr '92) [MF#1328]

**Optima MiniPak 200 🐭🐭🐭½**
This compact SCSI hard-disk drive is poorly built and has an internal fuse but includes good SCSI cable and good documentation. Good performance. Internal mechanism is Maxtor LXT-213SY. Actual capacity with included Optima DiskMount formatter is 200.6 MB. Bundled with disk-mirroring software. $1,895. Optima Technology, 17526 Von Karman, Irvine, CA 92714. 714-476-0515. (Apr '92) [MF#1329]

**Optima MiniPak 310 🐭🐭🐭🐭**
The Optima MiniPak 310 is a compact 311-MB hard-disk drive. Long seek times. Good software. Small case. $2,495. Optima Technology, 17526 Von Karman, Irvine, CA 92714. 714-476-0515. (Dec '90) [MF#1330]

**PCPC MacBottom 50MB 🐭🐭🐭½**
This well-designed, inexpensive hard-disk drive is based on the Quantum LP52S mechanism. The low-profile case fits well under a Mac Classic. Unfortunately, this single-port drive has a 25-pin nondetachable cable and the SCSI-ID switch allows "illegal" numbers 7 through 9. $399. PCPC (Personal Computer Peripherals Corp.), 4710 Eisenhower Blvd., Bldg. A4, Tampa, FL 33634. 800-622-2888 or 813-884-3092. (Apr '91) [MF#1331]

**PLI PL 1.2 Gigabyte 🐭🐭🐭🐭**
This hard-disk drive's formatted capacity is 990 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides good performance with the PLI Formatter 3.0 SCSI driver. Includes PLI Turbo Utilities for partitioning, optimizing, and backup functions. $4,999. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (July '91) [MF#1332]

**PLI PL 40 Turbo 🐭🐭🐭🐭**
This hard-disk drive is based on the Quantum P40S mechanism. Has a low profile and good construction. Good formatting software and 9 MB of bundled shareware. $599. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (Apr '91) [MF#1333]

**PLI PL200 Turbo Quantum 🐭🐭🐭½**
This SCSI hard-disk drive is well built but has poor documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included PLI Formatter software is 197.3 MB. Bundled with 12 MB of shareware. $1,199. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (Apr '92) [MF#1334]

**PLI PL320F Turbo 🐭🐭🐭🐭**
The PLI PL320F Turbo is a fast 320-MB hard-disk drive. Short seek times and average throughput rate. Large case. Good support. $2,799. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (Dec '90) [MF#1335]

**Procom MD200 🐭🐭🐭**
This hard-disk drive is poorly built but includes good SCSI cable and good documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Procom formatter is 197.3 MB. Version 3.04 software reviewed. $1,555. Procom Technology, Inc., 2181 Dupont Dr., Irvine, CA 92715. 800-800-8600 or 714-549-9449. (Apr '92) [MF#1336]

**Relax Hard Plus 1.0 Gigabyte 🐭🐭🐭½**
This hard-disk drive's formatted capacity is 1,000 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides good performance with the Relax 1.10 SCSI driver. Software provides password-protection, encryption, and backup functions. Diversified I/O 2.01 SCSI driver necessary for partitioning. Version 1.0 Gig Plus reviewed. Version 1.0 Gig Vista shipping. $1,899 direct; Diversified I/O 2.01 SCSI driver, $59. Relax Technology, Inc., 3101 Whipple Rd., Ste. 22, Union City, CA 94587. 510-471-6112. (July '91) [MF#1337]

**Relax Vista 210 🐭🐭🐭½**
This affordable SCSI hard-disk drive has adequate construction quality, poor formatting software, and good documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Fuse is internal. Actual capacity when formatted with included Relax Installer is 197.3 MB. Two-year warranty. Version 1.13 reviewed. $699 direct. Relax Technology, Inc., 3101 Whipple Rd., Ste. 22, Union City, CA 94587. 510-471-6112. (Apr '92) [MF#1338]

**Rodime Cobra 1000e 🐭🐭🐭½**
This hard-disk drive's formatted capacity is 990 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides good performance with the Cobra 1.1.3 SCSI driver. Includes Redux software for partitioning, password protection, encryption, and backup. $8,899. Rodime Systems, Inc., 7700 W. Camino Real, Boca Raton, FL 33433. 800-227-4144 or 407-391-7333. (July '91) [MF#1339]

**Saturae Academy 200 🐭🐭🐭🐭**
This affordable hard-disk drive is fast and well built and has good documentation. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Dataware formatter is 197.3 MB. Two-year warranty. Version 2.01 software reviewed. $699 direct. Saturae Corp., 148 Richdale Ave., Cambridge, MA 02140. 800-373-3063 or 617-661-8166. (Apr '92) [MF#1340]

**Saturae Proline 200 🐭🐭🐭🐭½**
This hard-disk drive is fast and well-built and has good documentation. Internal mechanism is Hewlett-Packard C2233. Actual capacity with included Dataware formatter is 221.6 MB. Five-year warranty. Version 2.01 software reviewed. $799 direct. Saturae Corp., 148 Richdale Ave., Cambridge, MA 02140. 800-373-3063 or 617-661-8166. (Apr '92) [MF# 1341]

**Storage Dimensions MacinStor 1020-S1 🐭🐭🐭🐭**
This hard-disk drive's formatted capacity is 999 MB. Average seek time of 15 milliseconds. Based on the Seagate ST41200NM mechanism. Provides good performance with the MacinStor 3.0 SCSI driver. Includes MacTools Deluxe software. Has a two-year warranty. Excellent manual. $6,799. Storage Dimensions, Inc., 1656 McCarthy Blvd., Milpitas, CA 95035. 408-944-0710. (July '91) [MF#1342]

**Storage Dimensions MacinStor 205 🐭🐭🐭½**
This hard-disk drive has adequate construction quality and includes good SCSI cable and good documentation. Good performance. Internal mechanism is Maxtor LXT-213SY. Actual capacity with included MacinStor formatter is 200.7 MB. Fuse is internal. Two-year warranty. Version 3.02 reviewed. $1,509. Storage Dimensions, Inc., 1656 McCarthy Blvd., Milpitas, CA 95035. 408-944-0710. (Apr '92) [MF#1343]

**Third Wave 210 MB Hard Drive 🐭🐭🐭½**
This affordable hard-disk drive is poorly built but has good documentation and good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Disk Manager Mac formatter is 197.3 MB. Two-year warranty. $749 direct. Third Wave Computing, Inc., 1826-B Kramer Ln., Austin, TX 78758. 800-284-0486 or 512-832-8282. (Apr '92) [MF#1344]

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**MICE RATINGS** ....... 🐭 ........ 🐭½ ............ 🐭🐭 ............ 🐭🐭½ ............ 🐭🐭🐭 ............ 🐭🐭🐭½ ............ 🐭🐭🐭🐭 ............ 🐭🐭🐭🐭½ ............ 🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

**TMS Peripherals Pro210 🐭🐭🐭🐭**
This affordable hard-disk drive is well built but has poor documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity when formatted with included TMS Diskwriter/Formatter software is 197.3 MB. Bundled with 26 MB of shareware. Two-year warranty. $745 direct. TMS Peripherals, 1120 Holland Dr., Ste. 16, Boca Raton, FL 33487. 800-275-4867 or 407-998-9958. (Apr '92) [MF# 1345]

**Tulin A-Hive Hard Drive1GB 🐭🐭🐭🐭**
This hard-disk drive has a formatted capacity of 990 MB. Average seek time of 15 milliseconds. Based on the Micropolis 1598-15 mechanism. Has good performance with the DataWare 1.3b13 SCSI driver. Choice of 36- or 72-inch SCSI cabling. $2,119. Tulin Technology, 2156H O'Toole Ave., San Jose, CA 95131. 408-432-9057. (July '91) [MF#1346]

**Tulin Hive Jr 210 MB 🐭🐭🐭**
This hard-disk drive is poorly built and has poor documentation. Good performance. Internal mechanism is Quantum ProDrive 210S. Actual capacity with included Spot On formatter is 197 MB. Warranty not specified with packaging. $789 direct. Tulin Technology, 2156H O'Toole Ave., San Jose, CA 95131. 408-432-9057. (Apr '92) [MF#1347]

**Wholesale 54 105Q 🐭🐭🐭½**
This affordable external hard-disk drive uses a Quantum ProDrive 105S internal mechanism. Adequate performance. Actual formatted capacity is 105 MB. No software bundled. Formatting utility provided is Disk Manager Mac 2.24. $389 direct. Wholesale 54, 2415 S. Roosevelt, Tempe, AZ 85282. 800-659-0054. (Nov '91) [MF#1348]

## STORAGE SYSTEMS/ REMOVABLES

**ADIC MacBack DAT 🐭🐭🐭**
The ADIC MacBack DAT includes MacBack network-backup server software, client software, and the solidly built ADIC MacBack DAT cassette drive. Can restore to clients over the network and allows client-controlled file selection. Slow and heavy, and requires both client and backup server applications to be running. Software supports other tape drives. Version 2.02 software reviewed. Requires Mac Plus or later and a hard-disk drive. $4,995. ADIC (Advanced Digital Information Corp.), 14737 N.E. 87th St., Redmond, WA 98073. 800-336-1233 or 206-881-8004. (Oct '91) [MF#1349]

**APS Archive Python 🐭🐭🐭🐭**
APS Archive Python includes the fast, compact Archive 4330 DAT cassette drive and Retrospect 1.2 backup software. Requires Mac Plus or later and a hard-disk drive. $1,499 direct. APS (Alliance Peripheral Systems), 2900 S. 291 Hwy., Independence, MO 64057. 800-235-2750 or 816-478-8300. (Oct '91) [MF#1350]

**APS SyQuest 88 MB Drive 🐭🐭🐭🐭**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good construction. Poor SCSI-cable design. Driver software formats cartridges at 83-MB capacity and supports partitioning and password protection. Comes with 18 MB of public-domain software. Requires Mac Plus or later. $899 direct. APS (Alliance Peripheral Systems), 2900 S. 291 Hwy., Independence, MO 64057. 800-235-2750 or 816-478-8300. (Jan '92) [MF#1351]

**CD Technology Porta-Drive 🐭🐭🐭🐭**
This small, well-built portable CD-ROM drive offers good performance. Good audio software but limited volume control. Version T3301 shipping. $795. CD Technology, Inc., 766 San Aleso Ave., Sunnyvale, CA 94086. 408-752-8500. (June '91) [MF#1352]

**Chinon CDA-431 🐭🐭🐭🐭**
This small portable CD-ROM drive is well built but offers mediocre speed. $795. Chinon America, Inc., 660 Maple Ave., Torrance, CA 90503. 800-441-0222 or 310-533-0274. (June '91) [MF# 1353]

**CMS Platinum 88MB 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good documentation and bundled software. Poor construction and SCSI-cable design. Driver software formats cartridges at 84-MB capacity and supports partitioning, backup, password protection, data encryption, data recovery, disk optimizing, and diagnostics. Requires Mac Plus or later. $1,499. CMS Enhancements, Inc., 2722 Michelson Dr., Irvine, CA 92715. 714-222-6000. (Jan '92) [MF#1354]

**Cutting Edge 88MB Removable 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive has poor documentation and no bundled software. Good SCSI-cable design. Driver software formats cartridges at 85-MB capacity and provides backup and diagnostics. Requires Mac Plus or later. $1,345. Cutting Edge, 97 S. Red Willow Rd., P.O. Box 1259, Evanston, WY 82931. 307-789-3830. (Jan '92) [MF#1355]

**DaynaFile II 🐭🐭🐭🐭🐭**
This drive lets Macs read 3.5- and 5.25-inch DOS floppy disks. Supports Mac high-density disks and all PC formats. With a special INIT, the drive's volume icon appears on the desktop and is accessed like any other external drive. Bundled DOS Mounter software lets Apple FDHD drives mount PC disks on the desktop. Version 2.0 software reviewed. Version 3.0 shipping. Requires Mac Plus or later. Dual drive, any configuration, $599. Dayna Communications, Inc., 50 S. Main St., Salt Lake City, UT 84144. 801-531-0600. (Oct '89) ★ '87 Eddy [MF#1356]

**Deltaic OptiServer 600 🐭🐭🐭½**
The OptiServer 600 is an erasable optical drive with software that maps out bad sectors and parks read/write heads. Extremely quiet. Few software utilities. $3,499. Deltaic Systems, 1701 Junction Ct., Ste. 302B, San Jose, CA 95112. 800-745-1240 or 408-441-1240. (Nov '90) [MF#1357]

**DGR 128REM 🐭🐭🐭½**
This affordable magneto-optical-cartridge drive uses reliable, compact 3.5-inch optical discs and offers good construction. Internal mechanism is a MOST RMD-5100-S. Cartridge capacity after formatting is about 119 MB. Poor documentation. Bundled with Hard Disk Toolkit and Retrospect Remote. Formatter is HDT Primer. $1,299 direct. DGR Technologies, 1800 Rio Grande, Ste. 205, Austin, TX 78701. 800-235-9748 or 512-476-9855. (July '92) [MF# 1358]

**DPI 44 Removable 🐭🐭🐭🐭**
This vertically mounted SyQuest removable-cartridge drive has a sturdy metal case. Its diode-regulated fan assures cool operation. Comes with a cartridge that has a capacity of about 44 MB. $570. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (Feb '91) [MF#1359]

**DynaTek DAT 1300 🐭🐭🐭🐭**
The DynaTek DAT 1300 includes the fast Archive 4520NT DAT-cassette drive and Retrospect 1.2 backup software. Requires Mac Plus or later and a hard-disk drive. $1,795. DynaTek Automation Systems, Inc., 15 Tangiers Rd., Toronto, Ontario M3J 2B1, Canada. 416-636-3000. (Oct '91) [MF#1360]

**Ehman 45 MB Removable 🐭🐭🐭½**
This SyQuest removable-cartridge drive is well built, is reasonably priced, and offers good performance. It comes with a cartridge that has a capacity of about 44 MB. $549. Ehman Engineering, Inc., 97 S. Red Willow Rd., P.O. Box 2126, Evanston, WY 82931. 800-257-1666 or 307-789-3830. (Feb '91) [MF#1361]

**Ehman 88 MB Removable 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive has poor documentation and no bundled software. Good SCSI-cable design. Driver software formats cartridges at 85-MB capacity and supports backup and diagnostics. Requires Mac Plus or later. $845 direct. Ehman Engineering, Inc., 97 S. Red Willow Rd., P.O. Box 2126, Evanston, WY 82931. 800-257-1666 or 307-789-3830. (Jan '92) [MF#1362]

**EMAC Metro 88R 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers limited software. Driver software formats cartridges at 84-MB capacity and supports partitioning and password protection. Requires Mac Plus or later. $1,479. EMAC (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (Jan '92) [MF#1363]

**EMAC Metro CD 🐭🐭🐭🐭**
This CD-ROM drive is solidly built but has very slow disc access. Has good audio software and an internal speaker. Caddy is difficult to insert. $599. EMAC (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (June '91) [MF#1364]

**EMAC Metro DAT 🐭🐭🐭🐭**
The EMAC Metro DAT includes the WangDAT 1300 DAT-cassette drive and Retrospect Remote 1.2 network-backup software. SCSI Sentry hardware feature protects drive and also provides termination power for Mac Plus. Poor performance in incremental-restore tests. Requires Mac Plus or later and a hard-disk drive. $2,995. EMAC (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (Oct '91) [MF#1365]

**ETC 88R Removable Drive 🐭🐭🐭🐭**
Based on the SyQuest SQ5110 mechanism, this affordable magnetic-cartridge drive has limited software and poor documentation. Driver software formats cartridges at 85-MB capacity and provides diagnostics. Requires Mac Plus or later. $599 direct; upgrade for 44-MB drive, $599. ETC Peripherals Corp., 5426 Beaumont Ctr. Blvd., Tampa, FL 33634. 800-882-2863 or 813-884-2863. (Jan '92) [MF#1366]

**FastBack Tape 🐭🐭🐭🐭½**
The FastBack Tape package includes an FB120 tape drive (128-MB capacity), FastBack II 2.10, manuals for both, a SCSI terminator block, a preformatted DC2110 minicartridge, and all necessary cables. A polished product. Requires Mac Plus or later. $1,395. Fifth Generation Systems, 10049 N. Reiger Rd., Baton Rouge, LA 70809. 800-873-4384 or 504-291-7221. (July '90) [MF#1367]

**FWB hammerDAT 2000 🐭🐭🐭🐭**
The FWB hammerDAT 2000 includes the WangDAT 1300 DAT-cassette drive and fast HammerBackup software. Bundled with Retrospect Remote network-backup software. Confusing manual. Requires Mac Plus or later and a

**MICE RATINGS** .......🐭 ........🐭½ ............🐭🐭 .............🐭🐭½ ..............🐭🐭🐭 ............🐭🐭🐭½ ...........🐭🐭🐭🐭 ..........🐭🐭🐭🐭½ .............🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

hard-disk drive. $2,639. FWB Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (Oct '91) [MF#1368]

**FWB hammerDisk 44 🐭🐭🐭🐭½**
The hammerDisk 44 is an excellent SyQuest removable-cartridge drive. Cartridge capacity is about 44 MB. It has a metal case, a well-designed power supply, an effective cooling system, high-quality formatting software, and easy-to-use documentation. Outstanding speed. $939. FWB, Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (Feb '91) [MF#1369]

**FWB HammerDisk 600S 🐭🐭🐭🐭½**
The Sony-based FWB HammerDisk 600S erasable optical drive is very fast. Software overrides copy protection. Has no auto-eject on dismount or shutdown. Requires Mac Plus or later. $4,339. FWB, Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (Nov '90) [MF# 1370]

**FWB hammerDisk 88 🐭🐭🐭🐭**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good construction, documentation, and software. Driver software formats cartridges at 84-MB capacity and supports partitioning, password protection, data encryption, and diagnostics. Requires Mac Plus or later. $1,799. FWB, Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (Jan '92) [MF# 1371]

**HDI POWERDrive 1.3 Gig DAT 🐭🐭🐭🐭**
The HDI POWERDrive 1.3 Gig DAT includes the Archive 4520NT DAT-cassette drive and Retrospect 1.2 backup software. Fast performance. Version 1.3-GB reviewed. Version 2-GB shipping. Requires Mac Plus or later and a hard-disk drive. $1,495 direct. HDI (Hard Drives International), 1912 W. Fourth St., Tempe, AZ 85281. 800-488-0001 or 602-350-1128. (Oct '91) [MF# 1372]

**HDI PowerDrive Removable 88MB 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive has poor construction and limited software. Driver software formats cartridges at 80-MB capacity and supports partitioning. Toll-free tech support. Requires Mac Plus or later. $899 direct. HDI (Hard Drives International), 1912 W. Fourth St., Tempe, AZ 85281. 800-488-0001 or 602-350-1128. (Jan '92) [MF# 1373]

**Iomega Bernoulli 90 🐭🐭🐭🐭**
Based on the Bernoulli 90 mechanism, this magnetic-cartridge drive has good construction and documentation, lots of bundled software, and good SCSI-cable design. Driver software formats cartridges at 90-MB capacity and supports partitioning, backup, and diagnostics. Comes with 33 MB of public-domain software. Good support. Requires Mac Plus or later and Mac Interface Kit. $1,149; Mac Interface Kit, $49 (includes backup software from Central Point) or $129 (includes Retrospect, from Dantz Development); upgrade from 44-MB Bernoulli drive, $725. Iomega Corp., 1821 W. 4000 S., Roy, UT 84067. 800-456-5522 or 801-778-1000. (Jan '92) [MF#1374]

**Iomega Transportable 44 🐭🐭🐭🐭½**
For maximum reliability in a removable-cartridge drive — albeit with a high price, heavy weight and slower performance — the Transportable 44 is an excellent choice. Best used for data transport, storage, and backup but not for constant spinning for hours or days at a time. Software can be set to spin down cartridges after a specified period of system inactivity. Software can also format a cartridge in the background. Can be upgraded to the Bernoulli 90 Transportable. $1,399; upgrade, $725. Iomega Corp., 1821 W. 4000 S., Roy, UT 84067. 800-456-5522 or 801-778-1000. (Feb '91) [MF#1375]

**Irwin 9131Se 🐭🐭🐭🐭**
The Irwin 9131Se package includes the Archive 4330 DAT-cassette drive and Retrospect 1.2 backup software. Compact case. Fast performance. Requires Mac Plus or later and a hard-disk drive. $3,546. Maynard Electronics, Inc., 36 Skyline Dr., Lake Mary, FL 32746. 800-821-8782 or 407-263-3500. (Oct '91) [MF#1376]

**Kennect Drive 2.4 🐭🐭🐭🐭½**
The Drive 2.4 is a connector/drive combination used with the Rapport connector attached to the external disk-drive port of a Mac Plus or SE. DOS 3.5-inch disks can be inserted into the Mac's internal drive and read through Apple File Exchange. Supports Mac and PC-formatted disks. A control panel is used to manage all drive formats. Incompatible with Mac IIfx and Portable. Requires Mac Plus or later. Drive 2.4, $495; Rapport, $295. Kennect Technology, 120A Albright Way, Los Gatos, CA 95030. 800-552-1232 or 408-370-2866. (Feb '90) [MF#1377]

**La Cie 45 MB Removable 🐭🐭🐭🐭**
This SyQuest removable-cartridge drive is solidly built and has an auto-switching power supply. The drive is bundled with Norton Utilities and Silverlining disk-management software. Cartridges have a capacity of about 44 MB. With cartridge, $649 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Feb '91) [MF# 1378]

**La Cie 600R Magneto-Optical 🐭🐭🐭🐭**
This erasable optical drive has fast performance. Bundled with Silverlining. With cartridge, $3,368 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Nov '90) [MF#1379]

**Liberty 115 128MB-MO 🐭🐭🐭🐭**
This affordable, portable magneto-optical-cartridge drive uses 3.5-inch optical discs. Comes with a carrying case. Internal mechanism is a MOST RMD-5100-S. Cartridge capacity after formatting is approximately 119 MB. Poor documentation. No bundled software. Formatter is SCSI Director. $1,499 direct. Liberty Systems, Inc., 160 Saratoga Ave., Ste. 38, Santa Clara, CA 95051. 408-983-1127. (July '92) [MF#1380]

**Liberty 88MB Removable Drive 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this affordable magnetic-cartridge drive has poor construction but good overall design. Driver software formats cartridges at 83-MB capacity and supports partitioning and diagnostics. $1,199; upgrade for 44-MB drive, $600. Liberty Systems, Inc., 160 Saratoga Ave., Ste. 38, Santa Clara, CA 95051. 408-983-1127. (Jan '92) [MF#1381]

**MacProducts Magic 128REM 🐭🐭🐭½**
This affordable magneto-optical-cartridge drive uses 3.5-inch optical discs and has good construction. Internal mechanism is a MOST RMD-5100-S. Cartridge capacity after formatting is approximately 119 MB. Poor documentation. Bundled with Hard Disk Toolkit and Retrospect Remote. Formatter is HDT Primer. $1,399 direct. MacProducts USA, Inc., 608 W. 22nd St., Austin, TX 78705. 800-622-3475 or 512-472-8881. (July '92) [MF#1382]

**MacProducts Magic 88 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good documentation and support. Driver software formats cartridges at 84-MB capacity and supports partitioning, password protection, and diagnostics. Requires Mac Plus or later. $899 direct; upgrade for 44-MB drive, $499. MacProducts USA, Inc., 608 W. 22nd St., Austin, TX 78705. 800-622-3475 or 512-472-8881. (Jan '92) [MF# 1383]

**MacTel Index 45 Removable 🐭🐭🐭🐭**
Although not the fastest SyQuest removable-cartridge drive, this solidly built product has complete hardware features. Excellent software includes BackMatic and AutoSave II. Drive supports A/UX partitions and comes with one cartridge that has a capacity of about 44 MB. $499 direct. MacTel Technology, 3007 N. Lamar Blvd., Austin, TX 78705. 800-950-8411 or 512-451-2600. (Feb '91) [MF#1384]

**MacTel Index 88R 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good documentation and bundled software. Poor overall design. Driver software formats cartridges at 88-MB capacity and supports partitioning, backup, password protection, and diagnostics. Comes with 14 MB of public-domain software. Good support. Requires Mac Plus or later. $899 direct. MacTel Technology, 3007 N. Lamar Blvd., Austin, TX 78705. 800-950-8411 or 512-451-2600. (Jan '92) [MF# 1385]

**MacTown DataStor 88 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good design and construction. Driver software formats cartridges at 88-MB capacity and supports partitioning. $589. MacTown, 1431 S. Cherryvale Rd., Boulder, CO 80303. 800-338-4273 or 303-442-4747. (Jan '92) [MF#1386]

**Mass Microsystems DataPak 88 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good documentation and bundled software. Driver software formats cartridges at 85-MB capacity and supports partitioning and password protection. Requires Mac Plus or later. $1,799. Mass Microsystems, Inc., 810 W. Maude Ave., Sunnyvale, CA 94086. 800-522-7979 or 408-522-1200. (Jan '92) [MF#1387]

**Mass Microsystems DataPak MO/128 🐭🐭🐭🐭**
This magneto-optical-cartridge drive uses 3.5-inch magneto-optical cartridges and offers good construction and documentation. Internal mechanism is a Sony SMO-P301. Cartridge capacity after formatting is approximately 119 MB. Bundled with SuperDisk and DiskDoubler. Formatting utility is DataPak MO/128 Formatter. $1,799. Mass Microsystems, Inc., 810 W. Maude Ave., Sunnyvale, CA 94086. 800-522-7979 or 408-522-1200. (July '92) [MF#1388]

**MicroNet 88 MB Removable 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive has limited bundled software. Good SCSI-cable design. Driver software formats cartridges at 84-MB capacity and supports partitioning and password protection. Requires Mac Plus or later. $1,395. MicroNet Technology, Inc., 20 Mason, Irvine, CA 92718. 714-837-6033. (Jan '92) [MF#1389]

**MicroNet CPKD-2000 🐭🐭🐭🐭**
The MicroNet CPKD-2000 includes the Archive 4320NT DAT-cassette drive and Retrospect Remote network-backup software.

**MICE RATINGS** ....... 🐭 ........ 🐭½ ............ 🐭🐭 .............. 🐭🐭½ ............... 🐭🐭🐭 ............. 🐭🐭🐭½ ............ 🐭🐭🐭🐭 ........... 🐭🐭🐭🐭½ ............. 🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

Fast. Compact case. Requires Mac Plus or later and a hard-disk drive. $3,295. MicroNet Technology, Inc., 20 Mason, Irvine, CA 92718. 714-837-6033. (Oct '91) [MF# 1390]

**MicroNet Micro/Optical SB-SMO-1 🐁🐁🐁🐁**
The MicroNet Micro/Optical SB-SMO-1 is a fast erasable optical drive. Can combine many discs into a single volume. $4,645. MicroNet Technology, Inc., 20 Mason, Irvine, CA 92718. 714-837-6033. (Nov '90) [MF#1391]

**MicroNet MR-45 🐁🐁🐁🐁**
The MR45 is a good choice among SyQuest removable-cartridge drives. It has excellent documentation, powerful software, and a well-shielded power supply. With cartridge, $895; with Retrospect Remote, $1,095. MicroNet Technology, Inc., 20 Mason, Irvine, CA 92718. 714-837-6033. (Feb '91) [MF#1392]

**Microtech CD600 🐁🐁🐁🐁**
This CD-ROM drive is well built and offers good performance. It has no preamp output, and volume control is limited. $899. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (June '91) [MF#1393]

**Microtech OR120 🐁🐁🐁½**
This slow magneto-optical-cartridge drive uses 3.5-inch optical discs and offers good construction. Cartridge capacity after formatting is approximately 119 MB. Bundled with Norton Utilities and LifeGuard. Formatting utility is OR 120 Formatter. Two-year warranty. $2,599. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (July '92) [MF#1394]

**Microtech R50 🐁🐁🐁🐁**
The R50 uses Ricoh's new magnetic-disk-cartridge technology. Good for storing and transporting large files. Comes with a cartridge, excellent utilities, and formatting software. $1,299. Microtech International, Inc., 158 Commerce St., East Haven, CT 06512. 800-626-4276 or 203-468-6223. (Feb '91) [MF#1395]

**Mirror CD-ROM 🐁🐁🐁🐁½**
This solidly built CD-ROM drive has good performance. Provides good audio software, but volume control is limited. No bundled CD-ROMs. $697. Mirror Technologies, Inc., 2644 Patton Rd., Roseville, MN 55113. 800-654-5294 or 612-633-4450. (June '91) [MF# 1396]

**Mirror RM42 🐁🐁🐁🐁**
The RM42 is a well-built, SyQuest removable-cartridge drive. It comes with QuicKeys, DiskTop, MockPackage+, and 10 MB of public-domain software. $497. Mirror Technologies, Inc., 2644 Patton Rd., Roseville, MN 55113. 800-654-5294 or 612-633-4450. (Feb '91) [MF#1397]

**Ocean Tidalwave 650 🐁🐁🐁🐁**
The Tidalwave 650 is a fast erasable optical drive. Includes MacTools Deluxe, plus software to find and mount Ocean drives on a SCSI chain. $3,295. Ocean Microsystems, Inc., 246 E. Hacienda Ave., Campbell, CA 95008. 800-262-3261 or 408-374-8300. (Nov '90) [MF#1398]

**Ocean Vista 128 🐁🐁🐁½**
This magneto-optical-cartridge drive uses 3.5-inch optical discs and offers good documentation. Internal mechanism is a MOST RMD-5100-S. Cartridge capacity after formatting is approximately 119 MB. Includes bare-bones formatting utility, Compass Works. $1,895 with one cartridge. Ocean Microsystems, Inc., 246 E. Hacienda Ave., Campbell, CA 95008. 800-262-3261 or 408-374-8300. (July '92) [MF#1399]

**Ocean Voyager 88 🐁🐁🐁½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good construction and documentation. Minimal bundled software. Driver software formats cartridges at 82-MB capacity and supports partitioning, backup, password protection, data encryption, data recovery, disk optimizing, and diagnostics. Requires Mac Plus or later. $1,595. Ocean Microsystems, Inc., 246 E. Hacienda Ave., Campbell, CA 95008. 800-262-3261 or 408-374-8300. (Jan '92) [MF#1400]

**OMI CDP-1B CD-ROM 🐁🐁🐁🐁**
This CD-ROM drive is well built and offers fast Photoshop performance. Includes audio software. External SCSI termination. $795. OMI (Optical Media International), 180 Knowles Dr., Los Gatos, CA 95030. 800-347-2664 or 408-376-3511. (June '91) [MF# 1401]

**Optima DisKovery 128MO 🐁🐁🐁🐁**
This magneto-optical-cartridge drive uses reliable, compact 3.5-inch optical discs. Internal mechanism is a Sony SMO-P301. Cartridge capacity after formatting is approximately 119 MB. Good documentation. DiskMount formatter included. $2,295. Optima Technology, 17526 Von Karman, Irvine, CA 92714. 714-476-0515. (July '92) [MF#1402]

**Optima DisKovery 88R 🐁🐁🐁½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good documentation and SCSI-cable design. Case allows vertical orientation. Driver software formats cartridges at 85-MB capacity and supports partitioning, password protection, data recovery, and diagnostics. $1,295. Optima Technology, 17526 Von Karman, Irvine, CA 92714. 714-476-0515. (Jan '92) [MF#1403]

**PCPC DATStream 🐁🐁🐁½**
Includes the Archive 4330 DAT-cassette drive and NetStream 2.04 backup software. Fast and easy to use for stand-alone backup but slow and hard to use for network backup. Version 2.04 software reviewed. Version 2.1 software shipping. Requires Mac Plus or later and a hard-disk drive. $2,995. PCPC (Personal Computer Peripherals Corp.), 4710 Eisenhower Blvd., Bldg. A4, Tampa, FL 33634. 800-622-2888 or 813-884-3092. (Oct '91) [MF#1404]

**Peripheral Vision PV-DAT 🐁🐁🐁🐁**
Includes the Archive 4520NT DAT-cassette drive and Retrospect Remote 1.2 network-backup software. Fast performance. Requires Mac Plus or later and a hard-disk drive. $1,995. Peripheral Vision, Inc., 2333 Fairmount Ave., Philadelphia, PA 19130. 215-232-9800. (Oct '91) [MF# 1405]

**Pinnacle Micro REO 1303 🐁🐁🐁🐁**
This portable magneto-optical-cartridge drive uses 3.5-inch optical discs. Internal mechanism is a Sony SMO-P301. Formatted cartridge capacity is approximately 119 MB. Good documentation. No bundled software. Includes basic formatting utility, REO Formatter. $1,995 direct. Pinnacle Micro, Inc., 19 Technology, Irvine, CA 92718. 800-553-7070 or 714-727-3300. (July '92) [MF# 1406]

**Pinnacle Micro REO-6500 🐁🐁🐁🐁**
The REO-6500 optical jukebox combines a Sony magneto-optical disc drive with a robotic media changer that can handle ten cartridges containing 650 MB each. Users can mount each cartridge as a separate volume, and volumes can be combined up to 2 GB. All disc-changer operations are automatic and transparent to users. Jukebox Admin software simplifies cartridge handling. Version 2.0 reviewed. Requires Mac Plus or later and a hard-disk drive. $9,995; software, cables, power cord, $995; disc, $199. Pinnacle Micro, Inc., 19 Technology, Irvine, CA 92718. 800-553-7070 or 714-727-3300. (Aug '91) [MF# 1407]

**Pinnacle REO-650 🐁🐁🐁½**
This erasable optical drive has average speed. A/UX option. Voltage selector. Few utilities. $3,995; Pak-Mac adapter kit, $299. Pinnacle Micro, Inc., 19 Technology, Irvine, CA 92718. 800-553-7070 or 714-727-3300. (Nov '90) [MF# 1408]

**PLI Infinity 40 Turbo 🐁🐁🐁🐁**
This SyQuest removable-cartridge drive comes with excellent utilities software and formatting as well as some great programs for backup, file compression, optimizing, and diagnostics. $899 with formatting software only; $999 with bundled utilities and shareware. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (Feb '91) [MF#1409]

**PLI Infinity 88 🐁🐁🐁🐁**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive comes with good bundled software. Driver software formats cartridges at 85-MB capacity and supports partitioning, data recovery, disk optimizing, and diagnostics. Comes with 15 MB of public-domain software. Upgrade for 44-MB SyQuest is available. Requires Mac Plus or later. $1,199. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (Jan '92) [MF#1410]

**PLI Infinity Optical 🐁🐁🐁🐁**
This fast erasable optical drive uses 5.25-inch cartridges. A/UX option allows 1,024-byte-sector discs. Includes TurboSpool print spooler and a vertical stand. $4,699. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (Nov '90) [MF# 1411]

**PLI Infinity Optical 3.5" Drive 🐁🐁🐁🐁**
This magneto-optical-cartridge drive uses 3.5-inch optical discs. Good construction and documentation. Internal mechanism is a Sony SMO-P301. Cartridge capacity after formatting is approximately 119 MB. Comes with PLI Formatter. $1,999. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (July '92) [MF#1412]

**PLI Jukebox Junior 🐁🐁🐁½**
The Jukebox Junior optical jukebox combines a Sony magneto-optical disc drive with a robotic media changer that can handle ten cartridges containing 650 MB each. Users can mount each cartridge as a separate volume, and volumes can be combined up to 4 GB. All disc-changer operations are automatic and transparent to users. Optional built-in hard-disk drive boosts performance. Version 1.0 reviewed. Requires Mac Plus or later and a hard-disk drive. $9,999; hard-disk drive and caching software, $1,999; ten cartridges, $1,999. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (Aug '91) [MF#1413]

**PLI PL CD-ROM 🐁🐁🐁🐁½**
This solidly built CD-ROM drive offers good performance. $999. PLI (Peripheral Land, Inc.), 47421 Bayside Pkwy., Fremont, CA 94538. 800-288-8754 or 510-657-2211. (June '91) [MF#1414]

**Procom MCD 650 🐁🐁🐁½**
This solidly built CD-ROM drive has good performance, but volume control is limited and there's no preamp output. $895. Procom Technology, Inc., 2181 Dupont

MICE RATINGS ....... 🐁 ........ 🐁½ ............ 🐁🐁 ............. 🐁🐁½ .............. 🐁🐁🐁 ............ 🐁🐁🐁½ ........... 🐁🐁🐁🐁 ........... 🐁🐁🐁🐁½ ............. 🐁🐁🐁🐁🐁

FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

Dr., Irvine, CA 92715. 800-800-8600 or 714-549-9449. (June '91) [MF#1415]

**Procom MDAT1300/M 🐭🐭🐭🐭**
The Procom MDAT1300/M includes the WangDAT 1300 DAT-cassette drive and Retrospect 1.2 backup software. Brief, easy-to-read manual. Requires Mac Plus or later and a hard-disk drive. $3,795. Procom Technology, Inc., 2181 Dupont Dr., Irvine, CA 92715. 800-800-8600 or 714-549-9449. (Oct '91) [MF#1416]

**Procom MEOD128 🐭🐭🐭🐭**
This magneto-optical-cartridge drive uses 3.5-inch optical discs. Offers good construction and documentation. Internal mechanism is a Sony SMO-P301. Fuse is internal. Formatted cartridge capacity is approximately 119 MB. Comes with Procom formatter. $1,995. Procom Technology, Inc., 2181 Dupont Dr., Irvine, CA 92715. 800-800-8600 or 714-549-9449. (July '92) [MF#1417]

**Procom MRD 88 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this affordable magnetic-cartridge drive offers limited software and minimal support. Driver software formats cartridges at 83-MB capacity and supports partitioning and password protection. Requires Mac Plus or later. $899. Procom Technology, Inc., 2181 Dupont Dr., Irvine, CA 92715. 800-800-8600 or 714-549-9449. (Jan '92) [MF#1418]

**Relax 1.2 Gig Tape Vista 🐭🐭🐭½**
Includes the fast Archive 4520NT DAT-cassette drive and SoftBackup•II 4.06 backup software, which has limited features. Version 4.06 software reviewed. Requires Mac Plus or later and a hard-disk drive. $1,369 direct. Relax Technology, Inc., 3101 Whipple Rd., Ste. 22, Union City, CA 94587. 510-471-6112. (Oct '91) [MF#1419]

**Relax Mobile 44 Vista 🐭🐭🐭½**
The Mobile 44 Vista is a SyQuest removable-cartridge drive with an auto-switching power supply, quiet fan, and built-in surge protection. Comes with a cartridge. The formatting software is powerful but difficult to use. $429. Relax Technology, Inc., 3101 Whipple Rd., Ste. 22, Union City, CA 94587. 510-471-6112. (Feb '91) [MF#1420]

**Relax Optical 600 Plus 🐭🐭🐭½**
The Relax Optical 600 Plus is an erasable optical drive with built-in power control, surge protection, noise filtering, and a compact case. Version 600 Plus reviewed. Version 600 Vista shipping. $1,899 direct. Relax Technology, Inc., 3101 Whipple Rd., Ste. 22, Union City, CA 94587. 510-471-6112. (Nov '90) [MF#1421]

**Relax Vista 88R 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive offers good documentation. Limited software bundled. Poor SCSI-cable design. Driver software formats cartridges at 83-MB capacity. Requires Mac Plus or later. $799 direct. Relax Technology, Inc., 3101 Whipple Rd., Ste. 22, Union City, CA 94587. 510-471-6112. (Jan '92) [MF#1422]

**Relax/Pioneer DRM-600 🐭🐭🐭½**
This well-built CD-ROM drive can hold six discs. Its performance is slow. Good volume control. Version DRM-600 reviewed. Version DRM-600A shipping. $949 direct. Relax Technology, Inc., 3101 Whipple Rd., Ste. 22, Union City, CA 94587. 510-471-6112. (June '91) [MF#1423]

**Sumo SS 50 Removable 🐭🐭🐭½**
Uses Ricoh's new magnetic-disk-cartridge technology. Good for storing and transporting large files. Doesn't match SyQuest drives' speed, however. Good documentation. Supports A/UX partitions. Bundled with Retrospect software. $1,229. Sumo Systems, 1580 Old Oakland Rd., Ste. C-103, San Jose, CA 95131. 408-453-5744. (Feb '91) [MF#1424]

**Tecmar DATaVault 🐭🐭🐭½**
The Tecmar DATaVault includes the WangTek 6130FS DAT-cassette drive and QTBackup software. Sturdy and heavy. Version 2.04 software reviewed. Version 3.0 shipping. Requires Mac Plus or later, Mac interface kit, and a hard-disk drive. $4,995; Mac interface kit, $195. Tecmar, Inc., 6225 Cochran Rd., Solon, OH 44139. 800-624-8560 or 216-349-0600. (Oct '91) [MF#1425]

**Tecmar THS-2200 🐭🐭🐭🐭**
The THS-2200 is a 2.2-GB-capacity backup tape drive built around an Exabyte 8-millimeter tape mechanism. Average transfer rate is 129.21K per second. Requires Mac Plus or later, Mac interface kit, and a hard-disk drive. $6,995; Mac interface kit, $195. Tecmar, Inc., 6225 Cochran Rd., Solon, OH 44139. 800-624-8560 or 216-349-0600. (July '90) [MF#1426]

**Third Wave 45R 🐭🐭🐭½**
This SyQuest removable-cartridge drive has an auto-switching power supply. Bundled with Fontina utilities, 12 MB of shareware, and HyperDeck. Version 1.5 Disk Manager Mac reviewed. Version 2.4 shipping. $475 direct. Third Wave Computing, Inc., 1826-B Kramer Ln., Austin, TX 78758. 800-284-0486 or 512-832-8282. (Feb '91) [MF#1427]

**Third Wave 88 SR 🐭🐭🐭½**
Based on the SyQuest SQ5110 mechanism, this magnetic-cartridge drive has poor design and construction. Poor SCSI cable. Driver software formats cartridges at 84-MB capacity and supports partitioning, password protection, and diagnostics. Good support. Requires Mac Plus or later. $799 direct. Third Wave Computing, Inc., 1826-B Kramer Ln., Austin, TX 78758. 800-284-0486 or 512-832-8282. (Jan '92) [MF#1428]

**Todd Enterprises TCDR6050 🐭🐭🐭🐭**
This CD-ROM drive offers good overall performance, even when used with Photoshop. No preamp audio output. $1,010. Todd Enterprises, 224 – 249 67th Ave., Bayside, NY 11364. 800-445-8633 or 718-343-1040. (June '91) [MF#1429]

## TELECOMMUNICATIONS

**Abaton InterFax 24/96 🐭🐭🐭½**
This fax modem is capable of either 2,400-bps data transmission or 9,600-bps fax transmission. Fax mode allows sending and receiving. Incorporates automatic data/fax switching, polling support, activity reports, good print times, and good regain-control times. Error correction is MNP Class 4, and data compression is MNP Class 5. Lacks features such as user-definable cover pages, a Preview mode, and scaling. Off-hook times are long, which can cause higher phone charges, but creating a fax is fast. Includes InterShare software. $595. Abaton (Everex Systems), 48431 Milmont Dr., Fremont, CA 94538. 800-628-3837 or 510-498-1111. (May '91) ★ '89 Eddy [MF#1430]

**Accu-Weather Forecaster 🐭🐭🐭🐭**
Accu-Weather Forecaster is a combined communications and meteorological data-analysis program. Gives access to hourly National Weather Service reports. Simple maps and charts let you view weather data graphically. Telecommunications mode is optimized to reduce connect-time costs. Version 1.05 reviewed. Version 2.1 shipping. Requires Mac Plus or later and a 300-, 1,200-, or 2,400-bps Hayes-compatible modem. $79.95; Accu-Weather connect fee, $39.95; educational and commercial connect rates higher. Software Toolworks, 60 Leveroni Ct., Novato, CA 94949. 800-234-3088 or 415-883-3000. (Aug '89) [MF#1431]

**CIM (CompuServe Information Manager) 🐭🐭🐭**
The CIM interface can help novices get the hang of using CompuServe. CIM lacks automated search/retrieval routines. Version 1.03 reviewed. Version 1.6 shipping. Requires Mac Plus or later with 2 MB of RAM, a hard-disk drive, and a modem. $39.95 (includes $25 usage credit) or $25 (includes $25 usage credit) for CIS members; $3 for ZiffNet/Mac edition. CompuServe Information Service, 5000 Arlington Centre Blvd., Columbus, OH 43220. 800-848-8199 or 614-457-8600. (Mar '91) [MF#1432]

**Computer Friends Lightspeed 2400LE 🐭🐭🐭½**
The price/performance of this 2,400-bps modem makes it a good buy. Make sure the CBL-124 cable is included. Faster than other modems that use MNP 5 compression. $159. Computer Friends, Inc., 14250 N.W. Science Park Dr., Portland, OR 97229. 800-547-3303 or 503-626-2291. (Jan '91) [MF#1433]

**Cypress Research FaxPro 🐭🐭🐭**
This networkable fax modem is capable of either 2,400-bps data transmission or 9,600-bps fax transmission. Fax mode allows sending and receiving. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or higher with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $850. Cypress Research Corp., 240 E. Caribbean Dr., Sunnyvale, CA 94089. 408-752-2700. (May '91) [MF#1434]

**Dove DoveFax Desktop 🐭🐭🐭🐭**
The DoveFax Desktop is an external fax modem capable of either 2,400-bps data transmission or 9,600-bps fax transmission. Fax mode allows sending and receiving. Allows flexible cover pages and provides fast off-hook and print times as well as good regain-control times. Version 2.0 reviewed. Version 2.03 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $299; internal NuBus-card version, $349. Dove Computer Corp., 1200 N. 23rd St., Wilmington, NC 28405. 800-788-3683 or 919-763-7918. (May '91) [MF#1435]

**Fax Line Manager 🐭🐭🐭🐭🐭**
Fax Line Manager (formerly Phone Line Manager) lets you connect a phone, a fax machine, and a modem to the same phone line. Two- and three-device versions are available. Intelligent enough to route incoming calls correctly. Outside callers can be given codes to override it, which saves time. Two-device version, $169; three-device version, $199. Technology Concepts, Inc., 1159 Triton Dr., Foster City, CA 94404. 800-852-6881 or 503-692-9600. (Mar '90) [MF#1436]

**Global Village TelePort A300 🐭🐭🐭🐭½**
This small 2,400-bps modem has solid performance. It connects to an ADB port. The software puts information on connection status, transmission speed, and the number of characters transmitted per second onto the desktop menu bar. Exemplary manual. Requires Mac SE or later. $225. Global Village Communications, 1204 O'Brien Dr., Menlo Park, CA 94025. 800-736-4821 or 415-329-0700. (Jan '91) ★ '90 Eddy [MF#1437]

**Hayes V-series Smartmodem 2400 🐭🐭🐭🐭½**
This modem's V.42bis compression lets it operate twice as fast as

modems with MNP 5. In some instances, its data-compression schemes let it approach 9,600-bps throughput. Software is easy to use and intuitive. $649; bundled with Smartcom II and Hayes Connect, $699. Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, GA 30348. 404-441-1617. (Jan '91) [MF#1438]

**Hayes V-series Smartmodem 9600 🐭🐭🐭🐭½**
The V-series Smartmodem 9600 is one of the fastest modems available for the Mac. Requires Mac 512Ke or later, Mac-to-modem cable, and communications software. $999; with cable, Smartcom II for the Mac, and HayesConnect software, $1,049. Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, GA 30348. 404-441-1617. (Jan '89) [MF#1439]

**MicroPhone II 🐭🐭🐭🐭½**
MicroPhone II supports virtually all protocols and modems, and many features can be heavily customized or automated. Program complexity and a very busy interface can be drawbacks for novices. Version 3.0 reviewed. Requires Mac Plus or later. $295. Software Ventures, Inc., 2907 Claremont Ave., Berkeley, CA 94705. 510-644-3232. (June '90) ★ '86 Eddy [MF#1440]

**Navigator 🐭🐭🐭🐭**
Navigator provides an interface and telecommunications links for CompuServe. Designed primarily as an off-line task-management program to minimize on-line connection charges, Navigator performs complex message-handling and file-transfer tasks quickly. Version 3.04 reviewed. Version 3.11 shipping. Requires Mac Plus or later, a hard-disk drive, and a modem. $99.95. CompuServe Information Service, 5000 Arlington Centre Blvd., Columbus, OH 43220. 800-848-8199 or 614-457-8600. (Mar '91) [MF#1441]

**Prometheus ProModem 2400M Plus 🐭🐭🐭🐭**
Although this modem has only average performance, its operation and bundled software are hassle-free. $299. Prometheus Products, Inc., 9524 S.W. Tualatin Sherwood Rd., Tualatin, OR 97062. 800-328-2337 or 503-692-9600. (Jan '91) [MF#1442]

**Remote/WakeUp 🐭🐭🐭🐭½**
This slick hardware/software combination lets you turn an ADB-capable Mac on from any modem and also shuts down the Mac after a specified period of inactivity. Uses a special modem cable that plugs in to the modem serial port and the Mac's ADB port. Version 1.0 reviewed. $49.95. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Aug '90) [MF#1443]

**Smartcom II 🐭🐭🐭🐭🐭**
Smartcom II balances power and ease of use. Capable of unattended operation and has a powerful command language. Fastest screen updating available, which can work at 9,600 bps. Version 3.0 reviewed. Version 3.2 shipping. Requires Mac 512K or later. $149. Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, GA 30348. 404-441-1617. (Jan '89) ★ '85 Eddy [MF#1444]

**TeleFinder Pro 🐭🐭🐭½**
TeleFinder Pro is an innovative telecommunications program with an interface resembling the Finder's. Connections to a TeleFinder BBS or to other TeleFinder Pro users are easy, with remote volumes appearing as hard-disk volumes within the interface. Version 1.02 reviewed. Requires Mac Plus or later, a hard-disk drive, and a modem. $79.95. Spider Island Software, 4790 Irvine Blvd., Ste. 105-347, Irvine, CA 92720. 714-730-5785. (Mar '92) [MF#1445]

**TelePort/FAX 9600 🐭🐭🐭½**
This send-only miniature fax modem uses the ADB port. Can transmit Mac documents in the background in Group 3 fax format at 9,600 bps. Also functions as a Hayes-compatible data modem, sending and receiving data at up to 2,400 bps. Can use MNP Level 5 compression. Software works well with Adobe Type Manager, Type 1 PostScript, and TrueType fonts as well as graphics. Fast and easy to use. Version 1.05 reviewed. Requires Mac SE or later. $295; fax upgrade for TelePort A300 data modem, $60. Global Village Communications, 1204 O'Brien Dr., Menlo Park, CA 94025. 800-736-4821 or 415-329-0700. (Aug '91) [MF#1446]

**TFLX 🐭🐭🐭🐭**
TFLX is a sophisticated programmable single-line voice-mail system with features that go beyond those of expensive multiline systems. Professional-level package includes custom hardware that connects the Mac and a phone line plus easy-to-use software modules for handling multiple voice-mail boxes, fax transmission, and remote control from a separate phone. Requires dedicated Mac with 4 MB of RAM, System 6.05 or later, and a hard-disk drive. Entry-level system, $495; professional-level system, $1,750. Magnum Software, 21115 Devonshire St., Ste. 337, Chatsworth, CA 91311. 818-700-0510. (Jan '92) [MF#1447]

**Timbuktu Remote 🐭🐭🐭½**
Timbuktu Remote is an easy-to-install screen-sharing program that lets one user observe and/or control another user's Mac via modem. The Mac can be a guest and a host simultaneously. Guests can connect to multiple hosts. Handles file transfer. Provides modem connections only, not network connections. Version 1.5 reviewed. Version 3.0 shipping. Requires Hayes-compatible modem. $195. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-596-9000. (Dec '90) [MF#1448]

**VersaTerm-PRO 🐭🐭🐭🐭½**
VersaTerm-PRO is the first telecommunications package that uses the Apple Communications Toolbox's add-on modules. Performance is excellent. Includes a serial module and supports Xmodem, Ymodem, and Kermit transfers. Version 3.0 reviewed. Version 3.6 shipping. Requires Mac Plus or later, System 6.05 or later, and modem or network connection. $295. Synergy Software, 2457 Perkiomen Ave., Reading, PA 19606. 800-876-8376 or 215-779-0522. (Sept '90) [MF#1449]

**White Knight 🐭🐭🐭🐭½**
White Knight (formerly Red Ryder) has been completely rewritten. The telecommunications program is more powerful, but the interface has taken a step backward. The manual is new and much improved. Version 11.02 reviewed. Version 11.13 shipping. Requires Mac Plus or later and a modem. $139. FreeSoft Co., 105 McKinley Rd., Beaver Falls, PA 15010. 412-846-2700. (May '90) ★ '87 Eddy [MF#1450]

**Zoom Telephonics Zoom/Modem V.42bis 🐭🐭🐭🐭½**
The Zoom/Modem is a reasonably priced 2,400-bps modem with excellent performance. Uses V.42bis compression, which reduces transfer times. Transmission rate comes close to 9,600 bps. Requires Mac Plus or later and a hard-disk drive. $169; cable, $12. Zoom Telephonics, Inc., 207 South St., Boston, MA 02111. 800-631-3116 or 617-423-1072. (Jan '91) [MF#1451]

**ZTerm 🐭🐭🐭🐭**
ZTerm is a good low-cost telecommunications program. Rich in features. Interface is intuitive. Xmodem, Ymodem, and Zmodem transfers are possible. Excellent performance. Easy to use if you have some telecommunications experience. Version 0.85 reviewed. Version 0.9 shipping. Requires Mac Plus or later, System 4.1 or later, a modem, and cables. Shareware; downloaded, $30; on-disk, $40. Alverson Software, 5635 Cross Creek Ct., Mason, OH 45040. (Sept '90) [MF#1452]

## UTILITIES

**After Dark 🐭🐭🐭🐭½**
After Dark is the excellent screen saver that introduced display modules. Allows easy control of module speed, sound level, and delay before screen-saver activates. Can be set to stay awake during any CPU activity except MIDI throughput. The color modules include the popular Fish! aquarium, Flying Toasters, Rainstorm, and the psychedelic Satori. Other modules are available from on-line services and BBS libraries. More After Dark contains 25 extra modules. Version 2.0u reviewed. Requires Mac Plus or later; sound requires System 6.03 or later. $49.95; More After Dark, $39.95; both, $69.95. Berkeley Systems, Inc., 2095 Rose St., Berkeley, CA 94709. 510-540-5535. (Oct '91) [MF#1453]

**AutoSave II 🐭🐭🐭🐭**
AutoSave II protects against system crashes. It saves your work at intervals from 1 to 99 minutes. Compatible with many applications but not recommended for use with databases. Version 1.01 reviewed. Version 2.0 shipping. Requires System 6.03 or later. $49.95. Magic Software, Inc., 2239 Franklin St., Bellevue, NE 68005. 800-342-6243 or 402-291-0670. (Dec '89) [MF#1454]

**ClickChange 🐭🐭🐭🐭½**
ClickChange is a control panel that customizes your Mac's interface by modifying various features such as window borders, title bars, text, menu background, sounds, and dialog boxes. Comes with a library of more than 40 cursors and 30 excellent sounds. Extremely easy to use. Version 1.0.3 reviewed. Version 1.052 shipping. Requires Mac Plus or later and System 6.03 or later. $89.95. Dubl-Click Software, Inc., 9316 Deering Ave., Chatsworth, CA 91311. 800-266-9525 or 818-700-9525. (Mar '91) [MF#1455]

**ClickPaste 🐭🐭🐭½**
ClickPaste puts the functionality of an ordered Scrapbook at the tip of your cursor. Most useful if you frequently cut and paste to and from your Scrapbook. Version 1.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later and System 6.03 or later. $99.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. 818-991-6540. (Sept '89) [MF#1456]

**Crash Barrier 🐭🐭🐭🐭½**
This control panel lets you recover from a variety of system crashes without always having to restart. Minimizes data loss when restarts are necessary. Works for about half the crashes you're likely to encounter. Replaces the Mac's standard bomb dialog box with one that identifies the problem and, if possible, offers various crash-recovery routes. Version 1.01 reviewed. Requires Mac Plus or later and System 6.03 or later. $79.95. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908. 800-359-4920 or 408-484-9228. (June '92) [MF#1457]

**Help! 🐭🐭🐭🐭**
This technical-support software package analyzes Mac systems, highlights potential problems, and suggests possible solutions. Creates detailed diagnostic reports covering one or more hard drives, servers, or floppies. Configuration section of reports describes

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FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

System Folder contents, applications, SCSI devices, video and other hardware setups, and a wide variety of software details. Version 1.0 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $149; quarterly Knowledgebase updates, $75. Teknosys, Inc., 3923 Coconut Palm Dr., Ste. 111, Tampa, FL 33619. 800-873-3494 or 813-620-3494. (Apr '92) [MF#1458]

**Icon-It! 🐁🐁🐁🐁½**
Icon-It! lets you create icons to use as alternatives to menu commands. Use its 100 icon templates, or create your own. Version 2.0 reviewed. Version 2.2 shipping. Requires Mac Plus or later. $129. Olduvai Corp., 7520 Red Rd., Ste. A, South Miami, FL 33143. 800-822-0772 or 305-665-4665. (Feb '88) [MF#1459]

**Kiwi POWER WINDOWS 🐁🐁🐁🐁**
Efficiently manages the placement and size of document windows for multiple applications under System 7. Uses special menu in the Finder to create and launch Work Sets, user-defined clusters of applications and files to be opened simultaneously. Provides useful Window Selection menu that lists all document windows for all open applications. Version 1.0 reviewed. Requires System 7 or later. $79.95. Kiwi Software, Inc., 6546 Pardall Rd., Santa Barbara, CA 93117. 800-321-5494 or 805-685-4031. (May '92) [MF# 1460]

**LifeGuard 🐁🐁🐁½**
LifeGuard is an INIT that acts like an electronic alarm clock, letting you know when a specified length of time has elapsed. You control the frequency of breaks as well as the interval allowed before it's time to resume work. Version 1.0 reviewed. Version 1.02 shipping. $59.95. Visionary Software, Inc., P.O. Box 69447, Portland, OR 97201. 800-877-1832 or 503-246-6200. (Feb '91) [MF#1461]

**MacEKG 🐁🐁🐁½**
This system extension loads into RAM at startup to administer a suite of diagnostic tests and compare current system performance with a log of previous test results. Includes a control panel for customizing test procedures. Also includes Restarter, which repeatedly reboots the Mac and accumulates diagnostic information. Version 1.0 reviewed. Version 2.0 shipping. $150. MicroMAT Computer Systems, 7075 Redwood Blvd., Novato, CA 94945. 415-898-6227. (Nov '91) [MF# 1462]

**MasterJuggler 🐁🐁🐁🐁**
This excellent resource-management utility is loaded with features, including constant access to hundreds of fonts, DAs, Fkeys, and sounds. Can link applications and then launch them with one command. Version 1.57 reviewed. Requires Mac Plus or later with System 6.03 or later. $49. ALSoft, Inc., P.O. Box 927, Spring, TX 77383. 713-353-4090. (July '92) [MF#1463]

**Maxima 🐁🐁🐁🐁½**
Maxima breaks the 8-MB limit on your Mac SE/30 or Mac II. Lets your applications use as much as 14 MB of virtual hard-disk memory. Can also create a lightning-fast RAM disk. Elegant design. No automatic write-through or volume-size partitioning features. Version 2.0 reviewed. Version 2.02 shipping. Requires SE/30 or Mac II and a hard-disk drive. $129. Connectix Corp., 2655 Campus Dr., San Mateo, CA 94403. 800-950-5880 or 415-571-5100. (Sept '90) [MF#1464]

**MockPackage Plus Utilities 🐁🐁🐁🐁½**
This set of extremely powerful DAs includes a text editor, text printer (supports LaserWriter), charter, terminal, EZmenus, and several other useful tools. Version 4.4 shipping. Requires Mac Plus or later and System 4.2 or later; hard-disk drive recommended. $49.95. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (Mar '87) [MF#1465]

**MultiClip 🐁🐁🐁🐁½**
MultiClip lets you have as many Clipboards as your hard-disk space allows, which makes many graphics and page-layout applications easier to use. Version 2.0 reviewed. Version 2.1.7c shipping. Requires Mac Plus or later. $149. Olduvai Corp., 7520 Red Rd., Ste. A, South Miami, FL 33143. 800-822-0772 or 305-665-4665. (Oct '90) [MF#1466]

**Now Utilities 🐁🐁🐁🐁🐁**
Now Utilities is a superb collection of system-enhancement tools: StartUp Manager, Super Boomerang (adds navigation features to Open and Save dialog boxes and to the Apple menu), Profiler (hardware/software analysis), NowMenus (hierarchical submenus), WYSIWYG Menus, MultiMaster (desktop and menu-bar management), DeskPicture (custom desktop background), AlarmsClock, NowSave (automatically saves documents at regular intervals), and ScreenLocker (a moderately secure password system). Version 3.0 reviewed. Version 3.01 shipping. Requires System 6.03 or later. $129. Now Software, Inc., 319 S.W. Washington St., 11th Floor, Portland, OR 97204. 800-237-3611 or 503-274-2800. (Jan '92) ★ '91 Eddy [MF#1467]

**POWERmenus 🐁🐁🐁🐁🐁**
POWERmenus is two products: The first allows full access to menus from anywhere on-screen, and the other includes a phone dialer, notepad, and useful launchers for DAs, control panels, and applications. Version 1.03 reviewed. Requires System 5.2 or later. $79.95. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (Jan '90) [MF#1468]

**Pyro! 🐁🐁🐁🐁🐁**
Pyro! is a screen saver with 12 user-selectable entertaining modules. Good use of color. Handles background tasks well. Can automatically switch to simpler modules when the background load is heavy. Version 4.0 reviewed. Version 4.1 shipping. Requires Mac Plus or later. $39.95. Fifth Generation Systems, 10049 N. Reiger Rd., Baton Rouge, LA 70809. 800-873-4384 or 504-291-7221. (July '90) [MF#1469]

**QuicKeys 🐁🐁🐁🐁**
QuicKeys lets you make full use of your Apple extended keyboard. Assign any command (menu choices, DAs, and the like) or series of text blocks and/or commands to any key or key combination. Enormously powerful. Version 2.0.1 reviewed. Version 2.11 shipping. Requires Mac Plus or later, System 6.04 or later, and a hard-disk drive. $149. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (May '91) ★ '87 Eddy [MF#1470]

**QuickTools 🐁🐁🐁🐁**
QuickTools is a well-programmed set of eight simple utilities. Customizes functions such as file launching, dialog boxes, menu-bar location, memory management, and extended-keyboard operation. Version 1.01 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $79.95. Advanced Software, Inc., 1095 E. Duane Ave., Ste. 103, Sunnyvale, CA 94086. 800-346-5392 or 408-733-0745. (Feb '92) [MF#1471]

**Screen Gems 🐁🐁🐁🐁**
Screen Gems is a package of five color utilities for the Mac II. Color Desk puts art onto your desktop, Dimmer dims the screen when the Mac is inactive, and Switch-a-Roo lets you switch between any two color modes instantly. Globe is a neat demo, and TN-3 lets you customize the Finder's Color menu. Version 1.0 reviewed. Requires Mac II series with 2 MB of RAM, System 4.2 or later, and a color monitor. $79. Microseeds Publishing, Inc., 5801 Benjamin Ctr. Dr., Ste. 103, Tampa, FL 33634. 813-882-8635. (Sept '89) [MF#1472]

**Stepping Out II 🐁🐁🐁🐁🐁**
Stepping Out II is a software alternative to a large-screen monitor. Lets you create a virtual screen inside the Mac's 9-inch screen. Automatically scrolls to new document position as you type or draw. Version 2.0 reviewed. Version 2.02 shipping. Requires Mac Plus or later. $95. Berkeley Systems, Inc., 2095 Rose St., Berkeley, CA 94709. 510-540-5535. (Oct '88) [MF#1473]

**Suitcase II 🐁🐁🐁🐁½**
Suitcase II has excellent resource-management capabilities that let you open 99 font, DA, sound, or Fkey files at a time. Can display any installed font in any style. Not completely intuitive. Has convenient two-window interface and menu bar. Sets feature lets you group font/DA suitcases into logical sets for special projects, and then deactivate sets when not needed. Version 2.0 reviewed. Requires Mac Plus or later and System 6.03 or later. $79. Fifth Generation Systems, 10049 N. Reiger Rd., Baton Rouge, LA 70809. 800-873-4384 or 504-291-7221. (July '92) ★ '87 Eddy [MF#1474]

**Tempo II Plus 🐁🐁🐁½**
Tempo II Plus is a powerful macro program designed for owners of extended keyboards. Especially good for building sequential macros. Unique features include conditional branching and the ability to remember menu selections by name. Version 2.01 reviewed. Version 2.0.3 shipping. Single user, $169.95; 5 users, $499.95; 10 users, $849.95; 25 users, $1,499.95; 50 users, $2,499.95. Affinity Microsystems Ltd., 1050 Walnut St., Ste. 425, Boulder, CO 80302. 800-367-6771 or 303-442-4840. (May '91) [MF#1475]

**Virtual 🐁🐁🐁🐁🐁**
This virtual-memory program provides as much as 15 MB of effective RAM, using hard disk for temporary storage. Excellent performance and superb support. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or SE (with accelerator card), II (with optional 68851 PMMU), or SE/30 or later. $199. Connectix Corp., 2655 Campus Dr., San Mateo, CA 94403. 800-950-5880 or 415-571-5100. (Apr '90) ★ '89 Eddy [MF#1476]

### UTILITIES/ FILE & DISK MANAGEMENT

**911 Utilities 🐁🐁🐁**
911 Utilities undeletes files without first copying and moving the deleted files. Has a good troubleshooting guide. Has poor file-recovery performance and poor performance in panic situations. Difficult interface. The popular Virex virus-protection program is included. Version 1.0 shipping. Requires Mac Plus or later. $149.95. Microcom, Inc., 500 River Ridge Dr., Norwood, MA 02062. 800-822-8224 or 617-551-1000. (Apr '91) [MF#1477]

**AutoBack 🐁🐁🐁🐁**
AutoBack creates copies of data files on another hard-disk drive (or on selected tape drives) whenever you save or activate a file.

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FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

Doesn't back up applications or System files. Performance is good. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later, System 6.04 or later, and a hard-disk drive. $125; 10-user package, $900; 25-user package, $1,900. TerraNetics, 2773 Westshire Dr., Los Angeles, CA 90068. 818-446-7692. (Aug '90) [MF# 1478]

**AutoDoubler 🐭🐭🐭🐭½**
AutoDoubler provides efficient, automatic, and completely transparent file compression and decompression from storage devices. Fast and reliable. Installs as control panel, with many useful options for extent and frequency of compression. Can exclude designated files, folders, or entire volumes from compression. Version 1.04i reviewed. Version 1.05 shipping. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $79.95. Salient Software, Inc., 124 University Ave., Ste. 300, Palo Alto, CA 94301. 415-321-5375. (July '92) [MF#1479]

**Backmatic 🐭🐭🐭🐭🐭**
This INIT scans your hard disk whenever you shut down and backs up all the changed files. Wide-ranging, easy-to-use exclusion abilities. Slow but utterly reliable. Version 1.0 reviewed. Version 2.0 shipping. Requires System 6.03 or later. $99.95; five-user pack, $295; ten-user pack; $495. Magic Software, Inc., 2239 Franklin St., Bellevue, NE 68005. 800-342-6243 or 402-291-0670. (July '90) [MF#1480]

**CanOpener 🐭🐭🐭🐭**
CanOpener is a search-and-retrieval utility that searches files for specified strings. Reads and displays text, MacPaint, PICT, EPS, TIFF, RIFF, and MacDraw II formats. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later. $125. Abbott Systems, 62 Mountain Rd., Pleasantville, NY 10570. 800-552-9157 or 914-747-4171. (Feb '90) ★ '89 Eddy [MF#1481]

**Cataloger 🐭🐭🐭**
This utility tracks the contents of floppy disks' contents and saves an index on your hard disk. Provides a comprehensive database for managing floppies. Can also index other removable media, hard disks, or file servers. Can print labels for disks. Version 1.1 reviewed. Requires Mac Plus or later and a hard-disk drive. $59. Masters Publishing Co., P.O. Box 1940, Ann Arbor, MI 48106. 313-996-8108. (Mar '92) [MF#1482]

**ColorSqueeze 🐭🐭🐭½**
ColorSqueeze is a file-compression program that shrinks photographic-quality color or gray-scale images. Allows three levels of JPEG compression for 24-bit PICT and TIFF images. Highest level of compression reduces file size by about 20:1, with some loss in image quality. Includes decompression-only utility for unlimited noncommercial distribution. Version 1.0 reviewed. Requires Mac II series with 2 MB of RAM, a 24-bit display system, and a hard-disk drive. $179. Eastman Kodak Co., 343 State St., Rochester, NY 14650. 800-242-2424 or 716-724-4000. (Sept '91) [MF# 1483]

**Compact Pro 🐭🐭🐭🐭🐭**
Written by Bill Goodman, Compact Pro (formerly Compactor) is a shareware application that quickly creates the smallest possible compressed files. It can also create self-extracting archives that open automatically when you double-click on their icons, even if Compact Pro isn't available. Version 1.21 reviewed. Version 1.32 Pro shipping. Requires Mac Plus or later and System 4.2 or later. Shareware, $25 (from on-line services); on disk from Cyclos, $35. Cyclos Software, P.O. Box 31417, San Francisco, CA 94131. 415-821-1448. (Apr '91) ★ '90 Eddy [MF#1484]

**Copy II Mac 🐭🐭🐭🐭**
Copy II Mac is a collection of powerful yet easy-to-use disk utilities, including disk-copying, file-editing, and searching capabilities. Version 7.2 reviewed. Requires Macintosh Plus or later. $39.95. Central Point Software, Inc., 15220 N.W. Greenbrier Pkwy. #200, Beaverton, OR 97006. 800-445-4208 or 503-690-8090. (Mar '89) ★ '85 Eddy [MF#1485]

**Dir-Acta-Ry 🐭🐭🐭🐭**
Dir-Acta-Ry gives you an overview of the contents of a directory. Takes a picture of files and folders on your hard disk to store in outline form. You can read files with any of the Acta DAs/applications or with other outlining programs. Features an impressive array of display and directory view options. Free; downloadable from many on-line services. David Dunham. (Oct '90) [MF#1486]

**DIRectory 🐭🐭🐭🐭½**
DIRectory is a fast, excellent file-cataloging tool. Easy-to-use Finder-like interface. Good printed reports. Includes actual icons and version numbers and a DA that can find files both on your disks and in DIRectory catalogs. Version 2.0 reviewed. Version 4.01 shipping. $99. Seagull Engineering, Box 909, S-22009, Lund, Sweden. 011-46-46-12-54-64. (Sept '90) [MF#1487]

**Disk Ranger 🐭🐭🐭🐭**
Disk Ranger is primarily a file-cataloging program. It has superb filtering abilities, useful sorting options, and good report-printing capability. Disk Ranger prints decent labels, on ImageWriters only. Version 1.0 reviewed. Version 4.75 shipping. Requires Mac 512Ke or later. $59.95. Graham Software Co., 8609 Ingalls Cir., Arvada, CO 80003. 303-422-0757. (July '90) [MF#1488]

**DiskDoubler 🐭🐭🐭🐭**
DiskDoubler consists of an INIT and an application for file compression and expansion. The INIT provides a simple interface, adding a pull-down menu to the Finder and all your applications. Version 3.0.1 reviewed. Version 3.7 shipping. Requires Mac Plus or later and System 6.03 or later. $79.95. Salient Software, Inc., 124 University Ave., Ste. 300, Palo Alto, CA 94301. 415-321-5375. (Apr '91) [MF#1489]

**DiskExpress II 🐭🐭🐭🐭🐭**
DiskExpress II is one of the best hard-disk optimizers (or defragmenters) available. Runs automatically in the background, at a preset time or manually. Version 2.10 shipping. Requires System 6.03 or later. $89.95. ALSoft, Inc., P.O. Box 927, Spring, TX 77383. 713-353-4090. (July '90) [MF# 1490]

**DiskTop 🐭🐭🐭🐭🐭**
DiskTop is the quintessential Finder-replacement DA. It's easy to use and powerful and has an excellent interface. Launches applications and performs batch copies and moves. Version 4.0 reviewed. Version 4.02 shipping. Requires Mac Plus or later and System 6.04 or later; hard-disk drive recommended. $99.95. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (June '90) [MF# 1491]

**DOS Mounter 🐭🐭🐭🐭**
DOS Mounter is an INIT that lets the Mac desktop mount DOS floppy disks as well as PC-compatible removable cartridges. Assigns Macintosh Type and Creator codes to DOS files, which lets specified Mac applications open them automatically without going through Apple File Exchange. Version 2.03 reviewed. Version 3.0 shipping. Requires any Mac with FDHD SuperDrive, external DOS floppy drive, or removable-cartridge drive. $89. Dayna Communications, Inc., 50 S. Main St., Salt Lake City, UT 84144. 801-531-0600. (Aug '91) [MF#1492]

**Fastback Plus 🐭🐭🐭🐭**
Fastback Plus is a backup utility that supports incremental and differential backups and offers a choice of compression levels. Backup configurations can be saved as preference files. Nonstandard dialog boxes are unclear. Version 2.0 reviewed. Version 2.6 shipping. Requires Mac 512Ke or later and System 4.2 or later. $189; upgrade, $30. Fifth Generation Systems, 10049 N. Reiger Rd., Baton Rouge, LA 70809. 800-873-4384 or 504-291-7221. (Oct '89) [MF#1493]

**FetchIt 🐭🐭🐭🐭½**
This INIT puts a pop-up menu on the right side of the small-icon and disk-name dialog boxes. This menu can be used to navigate your mounted drives or do other Finder-type operations. Version 2.01 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 6.03 or later. $40. CRA Z Software, P.O. Box 6379, Haverhill, MA 01831. 508-521-5262. (June '90) [MF#1494]

**File Director 🐭🐭🐭🐭🐭**
File Director is an extremely easy-to-use, versatile, and powerful collection of utilities. It includes Disk Tools, File Director, Calendar, Phone Pad, and RPN Calculator and Scientific Calculator. Good if your hard-disk drives contain many different files and applications. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later. $129. Fifth Generation Systems, 10049 N. Reiger Rd., Baton Rouge, LA 70809. 800-873-4384 or 504-291-7221. (Apr '91) [MF#1495]

**Findswell 🐭🐭🐭🐭🐭**
Findswell is an indispensable utility that installs a new button in the Open dialog box of every Mac application. Click on the button, type a search string, and click on Find; then Findswell searches for any files that match. Version 2.2 shipping. Requires Mac Plus or later. $29.95 direct. Working Software, Inc., P.O. Box 1844, Santa Cruz, CA 95061. 408-423-5696. (Nov '87) ★ '87 Eddy [MF#1496]

**HAND-OFF II 🐭🐭🐭🐭🐭**
HAND-OFF II lets you launch documents, using applications different from the ones that created the documents. Works with a variety of document types (including graphics) and lets you simply double-click on documents created with earlier program versions. Version 1.1 reviewed. Version 2.25 shipping. Requires Mac Plus or later with 2 MB of RAM and System 6.05 or later. $99. Connectix Corp., 2655 Campus Dr., San Mateo, CA 94403. 800-950-5880 or 415-571-5100. (Feb '91) [MF#1497]

**Hard Disk ToolKit 🐭🐭🐭🐭½**
Hard Disk ToolKit is a powerful group of applications that let you format, partition, diagnose, and optimize SCSI cartridge drives or hard-disk drives. Not for careless or casual users. Includes HDT Primer, HDT World Control, BenchTest, HDT Prober, HDT Extension, and HDT Util. Supports A/UX. Excellent manual. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later, System 6.03 or later, and a SCSI cartridge drive or hard-disk drive. $199.95. FWB, Inc., 2040 Polk St., Ste. 215, San Francisco, CA 94109. 415-474-8055. (May '92) [MF#1498]

**HFS Backup 🐭🐭🐭🐭**
HFS Backup is a top-class backup program. Quick and reliable. Includes everything from a virus

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checker to partial imaging capabilities. Can't back up removable-cartridge drives. Version 3.0 reviewed. Version 3.5 shipping. Requires Mac Plus or later. $99.95. PCPC (Personal Computer Peripherals Corp.), 4710 Eisenhower Blvd., Bldg. A4, Tampa, FL 33634. 800-622-2888 or 813-884-3092. (Oct '89) [MF#1499]

**ImpressIt 🐁🐁🐁🐁½**
ImpressIt is a fast file-compression program that shrinks photographic-quality color or gray-scale images. Wide range of JPEG compression levels for 8-, 16-, and 32-bit PICT and TIFF images. Preview feature lets you inspect details of photos at different compression ratios. Includes Photoshop plug-in module. Can create self-decompressing files. Version 1.1 reviewed. Requires Mac II series with 2 MB of RAM, a 24-bit display system, and a hard-disk drive. $159. Radius, Inc., 1710 Fortune Dr., San Jose, CA 95131. 800-227-2795 or 408-434-1010. (Sept '91) [MF#1500]

**INITPicker 🐁🐁🐁🐁½**
This control panel offers a scrollable list of INITs in the System Folder so you can determine their loading order. Can be invoked at startup. Version 1.0 reviewed. Version 2.02 shipping. Requires Mac Plus or later and System 6.03 or later. $69. Microseeds Publishing, Inc., 5801 Benjamin Ctr. Dr., Ste. 103, Tampa, FL 33634. 813-882-8635. (Aug '89) [MF#1501]

**MacLinkPlus/PC 🐁🐁🐁🐁🐁**
MacLinkPlus/PC offers document-translation capabilities among many PC and Mac applications. Its interface is friendly and translations are clean. In addition to translating locally or over a network, the package can connect to a PC serially or by modem. Translators also work with Apple File Exchange. Version 3.05 reviewed. Version 6.0 shipping. Requires Mac Plus or later and a hard-disk drive. MacLinkPlus/PC (with telecommunications), $199; MacLinkPlus/Translators (desktop version only), $169; MacLinkPlus/Wang VS, $395; MacLinkPlus/Wang OIS, $495. DataViz, Inc., 55 Corporate Dr., Trumbull, CT 06611. 800-733-0030 or 203-268-0030. (Oct '89) ★ '89 Eddy [MF#1502]

**MacLinkPlus/Translators 🐁🐁🐁🐁½**
MacLinkPlus/Translators is an easy-to-use file-translation package that exchanges a wide variety of text, database, spreadsheet, and graphics files between Macs and PCs. Includes DOS Mounter software from Dayna, which allows PC disks to appear on the Mac desktop. Version 5.0 reviewed. Version 6.0 shipping. Requires Apple File Exchange, a hard-disk drive, and either SuperDrive (or other PC disk drive) or network file transfer. $169. DataViz, Inc., 55 Corporate Dr., Trumbull, CT 06611. 800-733-0030 or 203-268-0030. (July '91) [MF#1503]

**MacTools Deluxe 🐁🐁🐁½**
MacTools Deluxe contains utilities that include a disk optimizer, a backup program, security options, partitioning software, search/launch capabilities, and a code-manipulation program called FileEdit. Version 1.2 reviewed. Version 2.0 shipping. Requires Mac Plus or later with 2 MB of RAM and System 6.05 or later. $149; upgrade, $49. Central Point Software, Inc., 15220 N.W. Greenbrier Pkwy. #200, Beaverton, OR 97006. 800-445-4208 or 503-690-8090. (Apr '91) [MF# 1504]

**MasterFinder 🐁🐁🐁🐁**
MasterFinder is a well-conceived program that comes as a DA and as an application, both of which let you navigate files and folders, using dynamically updated pop-up menus and scrolling lists of folder contents. Allows files to be automatically opened by an application even if it didn't create the file. Version 1.2 reviewed. Version 1.21 shipping. Requires Mac Plus or later with 2 MB of RAM. $149. Olduvai Corp., 7520 Red Rd., Ste. A, South Miami, FL 33143. 800-822-0772 or 305-665-4665. (Dec '91) [MF#1505]

**MultiDisk 🐁🐁🐁🐁**
MultiDisk is an excellent software disk partitioner that allows partitions to be dynamically resized, password-protected, and even encrypted. Version 1.11 reviewed. Version 1.27 shipping. Requires System 6.03 or later. $89.95. ALSoft, Inc., P.O. Box 927, Spring, TX 77383. 713-353-4090. (May '89) [MF#1506]

**Nightshift 🐁🐁🐁½**
Nightshift includes network-backup server and client applications. Fast. Easy to use and install. Limited file-selection features for backup. No scripting options. Version 1.5 reviewed. Requires Mac Plus or later and a hard-disk drive. Includes site license. $995; with TTI drive purchase, $495. TTI (Transitional Technology, Inc.), 5401 E. La Palma Ave., Anaheim, CA 92807. 714-693-7707. (Aug '91) [MF#1507]

**Norton Utilities for the Macintosh 🐁🐁🐁🐁🐁**
This highly recommended package provides complete tools for protecting and restoring the data on your hard-disk drive. Utilities that optimize hard-drive performance and speed up searches for missing files are included as well as an application that modifies the appearance of Finder windows. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later and System 6.04 or later. $149. Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014. 800-441-7234 or 408-253-9600. (Mar '91) ★ '90 Eddy [MF#1508]

**OffLine 🐁🐁🐁½**
OffLine is a utility that tracks the contents of floppy disks' contents and saves an index on your hard disk. Has a simple, well-designed interface but relatively few bells and whistles. File-search function is limited but adequate for most users. Can also track the contents of other removable media, file servers, and a hard-disk drive. Version 2.1 reviewed. Requires Mac Plus or later and a hard-disk drive. $99.95. SNA, Inc., P.O. Box 3662, Princeton, NJ 08543. 800-628-6442 or 609-799-9605. (Mar '92) [MF#1509]

**On Cue 🐁🐁🐁🐁½**
On Cue lets you switch applications without returning to the Finder. Under MultiFinder, active applications are listed on a pop-up menu. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later. $99.95. ICOM Simulations, Inc., 648 S. Wheeling Rd., Wheeling, IL 60090. 800-877-4266 or 708-520-4440. (Sept '88) [MF#1510]

**On Location 🐁🐁🐁🐁**
On Location finds files and text strings. Once they're found, you can view file contents (for most common document formats); open a file in its native application; or copy, delete, rename, or move a file. Main asset is blazing speed. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $129.95. ON Technology, Inc., 155 Second St., Cambridge, MA 02141. 617-876-0900. (Aug '90) [MF#1511]

**PickTure 🐁🐁🐁🐁½**
This INIT and control panel serves as a visual file selector. Presents rows of miniature screen shots of all files that a selected application can open. Double-clicking on the screen shot opens the desired file. Radio buttons customize navigation through folders. Can create custom color icons. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later and System 6.03 or later. $89.95. Right Answers, Inc., P.O. Box 3699, Torrance, CA 90510. 818-840-8021. (July '91) [MF#1512]

**PicturePress 🐁🐁🐁🐁**
This file-compression program shrinks photographic-quality color or gray-scale images. Allows wide range of JPEG compression levels for 24-bit PICT or TIFF images. Photoshop plug-in module uses Photoshop's built-in virtual-memory capability. Allows selected areas within images to be compressed at different ratios. Optional accelerator card reduces compression/decompression times to a few seconds. Version 1.03 reviewed. Version 2.03 shipping. Requires Mac II series or higher with 2 MB of RAM, a 24-bit display system, and a hard-disk drive. $199; with StormCard accelerator, $999. Storm Technology, Inc., 1861 Landings Dr., Mountain View, CA 94039. 415-691-6600. (Sept '91) ★ '91 Eddy [MF#1513]

**POWERicons 🐁🐁🐁🐁**
POWERicons creates duplicate application icons for simple and efficient hard-disk organization. It can open sets of frequently used icons and print document batches. Easy and fast setup. Good manual. Version 2.0 shipping. Requires System 6.03 or later. $49.95. Magic Software, Inc., 2239 Franklin St., Bellevue, NE 68005. 800-342-6243 or 402-291-0670. (Feb '90) [MF#1514]

**QTBackup with QTShare 🐁🐁🐁½**
This software bundle includes network-backup server and client applications. Powerful, easy-to-use scripting. Supports other Tecmar tape drives. Excellent documentation. Version 2.04 QTBackup and 1.0 QTShare reviewed. Version 3.0 QTBackup shipping. Requires Mac Plus or later and a hard-disk drive. $149. Tecmar, Inc., 6225 Cochran Rd., Solon, OH 44139. 800-624-8560 or 216-349-0600. (Aug '91) [MF# 1515]

**Redux 🐁🐁🐁🐁½**
Redux is an excellent incremental-backup program. Lets you back up files, folders, or entire volumes. You can write scripts, using BackTalk, the Redux control language. Version 1.5 reviewed. Version 1.63 shipping. Requires Mac Plus or later and System 6.03 or later. $99. Microseeds Publishing, Inc., 5801 Benjamin Ctr. Dr., Ste. 103, Tampa, FL 33634. 813-882-8635. (July '89) [MF#1516]

**Retrospect 🐁🐁🐁🐁½**
This full-featured backup and archival package supports storage devices from floppies to DAT drives. Retains AppleShare access privileges. Version 1.1 reviewed. Version 1.3 shipping. Requires Mac Plus or later and System 6.03 or later. $249. Dantz Development Corp., 1400 Shattuck Ave., Ste. 1, Berkeley, CA 94709. 510-849-0293. (Dec '89) ★ '89 Eddy [MF#1517]

**Retrospect Remote 🐁🐁🐁🐁½**
Retrospect Remote includes network-backup server and client applications. Fast. Restores files to clients over the network quickly. Version 1.2 reviewed. Version 1.3 shipping. Requires Mac Plus or later and a hard-disk drive. $449. Dantz Development Corp., 1400 Shattuck Ave., Ste. 1, Berkeley, CA 94709. 510-849-0293. (Aug '91) [MF#1518]

**Shortcut 🐁🐁🐁🐁🐁**
This INIT greatly increases the functionality of Open and Save dialog boxes by adding numerous options for creating new folders, going directly to or getting information about any folder, opening any file, or unstuffing any StuffIt archive. Performance is nearly

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flawless. Version 1.5 reviewed. Version 1.52 shipping. Requires Mac Plus or later and System 6.03 or later. $79.95. Aladdin Systems, Inc., 165 Westridge Dr., Watsonville, CA 95076. 408-761-6200. (Sept '91) [MF#1519]

**Silverlining 🐭🐭🐭½**

Silverlining is an advanced hard-disk-utility set with excellent disk-partitioning software. Formats most hard-disk drives. Powerful, safe optimizing and testing features. Version 4.0 reviewed. Version 5.33 shipping. Requires Mac Plus or later and SCSI mass-b storage device. $149 direct. La Cie Ltd., 8700 S.W. Creekside Pl., Beaverton, OR 97005. 800-999-0143 or 503-520-9000. (Jan '90) [MF#1520]

**Software Bridge for the Macintosh 🐭🐭🐭½**

Software Bridge is a collection of file translators for PC-to-Mac file conversion. Used with Apple File Exchange, it provides translators for three Mac word-processing formats (Word, WordPerfect, and MacWrite) and more than 20 DOS formats. Version 1.0 reviewed. Mac Plus or later. $129. Systems Compatibility, Inc., 401 N. Wabash, Ste. 600, Chicago, IL 60611. 312-329-0700. (Mar '91) [MF#1521]

**StuffIt Classic 🐭🐭🐭🐭🐭**

StuffIt Classic compresses, joins, and encrypts files to reduce the amount of space they occupy on-disk. Great for transferring documents via modem. Version 1.5 reviewed. Version 1.6 shipping. Requires Mac Plus or later and System 6.03 or later. Shareware, $25. Aladdin Systems, Inc., 165 Westridge Dr., Watsonville, CA 95076. 408-761-6200. (Dec '88) [MF#1522]

**StuffIt Deluxe 🐭🐭🐭🐭½**

The commercial version of StuffIt is a powerful file-compression-and-archiving utility. Quick and easy to use. Provides nearly every feature required for compressing large single or multiple files. Capable of creating self-extracting archives, which can be opened on any Mac that doesn't have the original StuffIt Deluxe application. Includes security features, optional compression speeds, and a control panel for quick access. Version 2.0 reviewed. Version 2.01 shipping. Requires Mac Plus or later and System 6.03 or later. $99.95. Aladdin Systems, Inc., 165 Westridge Dr., Watsonville, CA 95076. 408-761-6200. (Sept '91) [MF#1523]

**SUM II (Symantec Utilities for Macintosh) 🐭🐭🐭🐭**

SUM II is an upgraded, expanded version of the SUM data-recovery package. Includes utilities for partitioning, encrypting, backing up, defragmenting, and optimizing floppies and hard-disk drives. Straightforward and reliable for defragmenting and optimizing, but less easy to use for undeleting files. Version 1.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later and System 6.03 or later. $149. Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014. 800-441-7234 or 408-253-9600. (Dec '89) ★ '88 Eddy [MF# 1524]

**SuperDisk! 🐭🐭🐭½**

This file-compression program is fast and reasonably easy to use. Unlike StuffIt and Compact Pro, it doesn't combine multiple files into one compressed archive. Degree of compression is good. All files placed in a designated folder can be automatically compressed. Compressed files automatically decompress without significant delay when opened by their creator applications. Version 1.7 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $89. Alysis Software Corp., 1231 31st Ave., San Francisco, CA 94122. 415-566-2263. (Apr '92) [MF#1525]

**Tiles 🐭🐭🐭**

Tiles is a Finder-enhancement utility designed to keep frequently accessed files and applications at your fingertips. Uses file-cabinet metaphor with drawers for files or applications, both of which are opened via scrolling windows of icon-tagged tiles. Good for anyone who wants System 7's alias feature without using System 7. Works well with QuicKeys sequence macros. Version 1.0 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $99.95. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (June '92) [MF#1526]

**Word for Word/Mac 🐭🐭🐭🐭**

Word for Word/Mac is a straightforward stand-alone DOS-to-Mac file-translation application. Does good job of retaining original text formatting. Depending on your Mac hardware setup, you may need another program such as Apple File Exchange to convert PC-format files to the Mac's binary format. Word for Word/Mac supports DOS-to-DOS translation as well as various graphics and spreadsheet formats. One of its strengths is that it tags formatting it was unable to convert. Version 1.2 reviewed. Requires Mac Plus or later. $149.95. Software Toolworks, 60 Leveroni Ct., Novato, CA 94949. 800-234-3088 or 415-883-3000. (Mar '91) [MF#1527]

### UTILITIES/PRINTING

**BulkMailer+ 🐭🐭🐭½**

BulkMailer+ is a basic mail manager with many powerful sorting features. Port setup can be difficult. Can handle as many as 90,000 names and addresses. Version 3.23 reviewed. Version 3.25 shipping. Requires Mac Plus or later; hard-disk drive recommended. $350. Satori Software, 2815 Second Ave., Ste. 295, Seattle, WA 98121. 206-443-0765. (Oct '89) [MF# 1528]

**DynoPage 🐭🐭🐭🐭**

DynoPage is an extremely practical utility that can save you lots of paper. Supports document printing in enlarged or reduced sizes, including minipages for personal organizers and appointment books. Handles double-sided output quickly and easily. Installs as control panel. Comes with more than 50 page-template forms, but altering them requires use of ResEdit; next version of DynoPage may include a forms editor. Includes a supply of prepunched personal-organizer laser paper. Version 1.0 reviewed. Requires Mac Plus or later and a hard-disk drive. $99.95. Portfolio Systems, Inc., 10062 Miller Ave., Ste. 201, Cupertino, CA 95014. 800-729-3966 or 408-252-0420. (Mar '92) [MF#1529]

**FastLabel 🐭🐭🐭🐭**

FastLabel is a good label creator and printer. Excellent tools for designing labels. Can include graphics and icons. Prints envelopes by treating them as large labels. Weak list handling. Version 2.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later, System 6.04 or later, and a hard-disk drive. $79.95. Vertical Solutions, P.O. Box 1150, Beaverton, OR 97075. 800-942-4008 or 503-524-7402. (Oct '90) [MF# 1530]

**Freedom of Press 🐭🐭🐭🐭🐭**

Freedom of Press gives you PostScript-quality output on non-PostScript printers and is the best software-only PostScript clone available. The only limit to output quality is the printer's maximum resolution. Supports Adobe Type 1 fonts and Adobe Type Manager. Process is slow and creates large PostScript files, but output is nearly indistinguishable from true PostScript-printer output. Background printing is possible when you're running under MultiFinder. Version 3.0 reviewed. Version 3.01 shipping. Requires Mac Plus or later with 2 MB of RAM, a hard-disk drive, and 2 MB of printer memory. $495. Custom Applications, Inc., 900 Technology Park Dr., Bldg. 8, Billerica, MA 01821. 800-873-4367 or 508-667-8585. (Feb '91) ★ '89 Eddy [MF#1531]

**Freedom of Press Light 🐭🐭🐭🐭🐭**

Although it supports fewer printers and comes with fewer fonts than the full-fledged version, the Light version also lets you print PostScript-quality output on non-PostScript printers. The only limit to output quality is your printer's maximum resolution. Supports Type 1 fonts and Adobe Type Manager. Background printing is possible when you're running under MultiFinder. Version 3.0 reviewed. Version 3.03 shipping. Requires Mac Plus or later with 2 MB of RAM, a hard-disk drive, and 2 MB of printer memory. $149. Custom Applications, Inc., 900 Technology Park Dr., Bldg. 8, Billerica, MA 01821. 800-873-4367 or 508-667-8585. (Feb '91) [MF#1532]

**GDT Softworks PowerPrint 🐭🐭🐭🐭**

PowerPrint is a set of custom print drivers for dot-matrix, inkjet, and non-PostScript laser printers. Doesn't require control-panel software. Each Mac must have registered copy to use networked printer. Requires Mac Plus or later and System 6.03 or later. $149. GDT Softworks, Inc., 4664 Lougheed Hwy., Ste. 188, Burnaby, British Columbia V5C 6B7, Canada. 800-663-6222 or 604-291-9121. (July '92) [MF# 1533]

**JetLink Express 🐭🐭🐭🐭½**

JetLink Express is a printer driver that allows youto print to non-PostScript Hewlett-Packard- or Canon-compatible printers. Provides TrueType scalable fonts and uses them automatically when you choose standard screen fonts. Performance is good but sacrifices some features offered by a properly configured PostScript printer. Version 1.5 reviewed. Version 1.01 PowerPrint shipping. Requires Mac Plus or later, System 6.03 or later, a hard-disk drive, and an HP- or Canon-compatible printer. $149. GDT Softworks, Inc., 4664 Lougheed Hwy., Ste. 188, Burnaby, British Columbia V5C 6B7, Canada. 800-663-6222 or 604-291-9121. (May '91) [MF#1534]

**KiwiEnvelopes! 🐭🐭🐭🐭**

This DA has simple features for one-shot envelope printing, but it needs font flexibility. Features include unlimited number of records, graphics capability, and postal-bar-code creation. Envelope sizes are limited. Has on-line help. Version 3.1 reviewed. Requires Mac Plus or later. $49.95. Kiwi Software, Inc., 6546 Pardall Rd., Santa Barbara, CA 93117. 800-321-5494 or 805-685-4031. (Apr '91) [MF#1535]

**MacEnvelope Plus 🐭🐭🐭🐭🐭**

MacEnvelope Plus is one of the best envelope and mailing-list programs available. Intended for small-business and group users who do substantial mailing. Can print bar codes and FIMs automatically. Sorts and reports by ZIP code or carrier routes. Does everything necessary to make your mailings qualify for the lowest bulk- and regular-mail rates. Operation is fast and very slick. Includes a DA, so envelopes can be printed on the fly from within other applications. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later. $350. Synex, 692 Tenth St., Brooklyn,

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NY 11215. 800-447-9639 or 718-499-6293. (Aug '90) [MF#1536]

**MacPrint 🐭🐭🐭🐭**
MacPrint is a printer driver that lets you print to non-PostScript Hewlett-Packard-compatible printers. Provides screen fonts for every HP font cartridge and special Compugraphic screen fonts. Includes cable. Good manual. Version 1.23 shipping. Requires Mac Plus or later, System 6.03 or later, a hard-disk drive, and an HP-compatible printer. $149. Insight Development Corp., 2200 Powell St., Ste. 500, Emeryville, CA 94608. 510-652-4115. (May '91) [MF# 1537]

**myDiskLabeler 🐭🐭🐭🐭**
myDiskLabeler is an excellent label maker. Can read directories and use large or small icons. Comes with 54 precut labels. Version 1.1 reviewed. Version 3.1 shipping. Requires Mac Plus or later. $80. Williams & Macias, Inc., S. 3707 Godfrey Blvd., Spokane, WA 99204. 800-752-4400 or 509-458-6312. (Aug '87) [MF# 1538]

**PrintBar 🐭🐭🐭🐭½**
PrintBar calculates and prints bar codes at varying resolutions. It supports UPC, EAN, Interleaved, 2 of 5, and Code 39. Operation is a bit clunky, but performance is fine. Output is easily transferable. Easy to use. Version 2.0 reviewed. Version 3.12 shipping. Requires Mac Plus or later. Nine volumes (for different codes), $95 to $295 each. Bear Rock Technologies, 6069 Enterprise Dr., Diamond Springs, CA 95619. 916-622-4640. (June '90) [MF#1539]

**QuickLetter 🐭🐭🐭🐭½**
QuickLetter is a well-designed and thoughtfully implemented DA for creating letters and envelopes. Creates stationery, complete with graphics, and maintains an address book that includes salutations. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later. $49.95. Working Software, Inc., P.O. Box 1844, Santa Cruz, CA 95061. 408-423-5696. (Apr '89) [MF#1540]

**SharpenUp 🐭🐭🐭🐭½**
SharpenUp is an INIT and control panel that automatically adjusts the relative width of lines, the texture of gray patterns, and the overall brightness on your laser printer. Has no effect on text or bit-mapped or EPS graphics. Can greatly improve the quality of lines in tables in Word 4.0 or of cell outlines in Excel. Comes with a nice set of predefined styles, and users can create custom styles easily. Version 1.0 shipping. Requires Mac Plus or later. $99. Somak Software, 535 Encinitas Blvd., Ste. 113, Encinitas, CA 92024. 800-842-5020 or 619-942-2556. (Sept '90) [MF#1541]

**SuperLaserSpool 🐭🐭🐭🐭**
SuperLaserSpool supports a wide range of printers, including the HP DeskWriter. Excellent performance. Installation is a snap, and use is mostly transparent. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 4.1 or later. $149.95. Fifth Generation Systems, 10049 N. Reiger Rd., Baton Rouge, LA 70809. 800-873-4384 or 504-291-7221. (Apr '90) [MF#1542]

## UTILITIES/SECURITY

**DiskLock 🐭🐭🐭🐭½**
This easy-to-use security program keeps the contents of your hard-disk drive private. Includes protection against trashing locked files and folders, support for DES, and the ability to do background processing. A proprietary encryption scheme is also provided. It doesn't offer customizable user levels, administrative functions, or a hierarchy of privileges, however. Version 2.0 reviewed. Version 2.12 shipping. Requires Mac Plus or later and System 4.1 or later. $189. Fifth Generation Systems, 10049 N. Reiger Rd., Baton Rouge, LA 70809. 800-873-4384 or 504-291-7221. (Mar '91) [MF# 1543]

**Empower II 🐭🐭🐭🐭**
Empower II is control-panel software that has a flexible, easy way to set up access privileges. Extends well beyond the capabilities of System 7's file sharing. Provides data encryption of individual files, but can't protect applications, prevent the deleting and renaming of accessible files and folders, or provide automatic shutdown and data eradication. Good manual. Administrative controls include an activity log, disabling of floppy drives at startup or later, and protection of DAs on a person-by-person basis. Lets users maintain the privacy of their personal files. Version 4.07 reviewed. Requires Mac Plus or later and a hard-disk drive. $296. Magna, 332 Commercial St., San Jose, CA 95112. 408-282-0900. (May '92) [MF#1544]

**FileGuard 🐭🐭🐭🐭🐭**
FileGuard is an excellent security package that operates primarily in the background. It is unique in that it can protect folders, applications, and data files, which it accomplishes by using an easily updated list of persons who have different levels of access. There is no DES encryption, but its proprietary encryption is good. FileGuard provides support for the MaccessCard Reader. Version 2.5 reviewed. Version 2.72 shipping. Requires Mac Plus or later; SE or later to use MaccessCard Reader. $249; five-user office pack, $795; ten-user office pack, $1,295. ASD Software, Inc., 4650 Arrow Hwy., E-6, Montclair, CA 91763. 714-624-2594. (Apr '91) [MF#1545]

**FolderBolt 🐭🐭🐭🐭**
FolderBolt is a straightforward, easy-to-use utility that protects the contents of individual folders instead of an entire disk volume. Allows three levels of security: password-protected, read-only, and drop-only (lets users add to a folder's contents). Can set up and manage grouped sets of folders accessible simultaneously with one password. Includes FolderBolt Administrator program that lets users or network administrators override bolted folders individually or by volume. FolderBolt Administrator can also be password-protected and provides an activity log with information about network traffic and any attempts at illegal folder access. Version 1.02 reviewed. Requires Mac Plus or later and a hard-disk drive. $129.95. Kent Marsh Ltd., P.O. Box 460289, 1200 Post Oak Blvd., Ste. 210, Houston, TX 77056. 800-325-3587 or 713-522-5625. (Mar '92) [MF#1546]

**Ft. Knox 🐭🐭🐭🐭**
Ft. Knox is an excellent, high-level security utility. Supports password protection and two forms of encryption. Files or volumes can be "sanitized" to U.S. top-secret standards. Ideal for classified government environments or high-level corporate and research facilities. May be overkill for normal business use. Easy to use and includes good manual. Version 1.05 reviewed. Requires Mac Plus or later and a hard-disk drive. $195 direct. Transfinite Systems Co., Inc., P.O. Box N, M.I.T. Branch Post Office, Cambridge, MA 02139. 617-969-9570. (June '92) [MF#1547]

**MaccessCard Reader 🐭🐭🐭🐭🐭**
MaccessCard Reader is a magnetic-identity-card reader that operates as part of ADB circuitry and requires ASD's FileGuard software. Can prevent unauthorized access to a Mac's entire hard disk or to a specified selection of files, folders, applications, and partitions. Requires Mac SE or later and FileGuard software. $349. ASD Software, Inc., 4650 Arrow Hwy., E-6, Montclair, CA 91763. 714-624-2594. (Apr '91) [MF#1548]

**MacSafe 🐭🐭🐭🐭**
MacSafe is a data-file-security program that lets you put multiple files into a "safe," where you can protect them further through two types of encryption (including DES). Flexible and easy to use. Allows for installation on hard-disk drive. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later. $189.95. Kent Marsh Ltd., P.O. Box 460289, 1200 Post Oak Blvd., Ste. 210, Houston, TX 77056. 800-325-3587 or 713-522-5625. (Mar '87) [MF#1549]

**NightWatch 🐭🐭🐭🐭**
NightWatch locks your hard-disk drive by using a floppy startup disk that acts as a key. Type in the correct password, and access to the hard-disk drive is allowed. Version 1.02 reviewed. Version 1.03 shipping. Requires Mac Plus or later and a hard-disk drive. $159.95. Kent Marsh Ltd., P.O. Box 460289, 1200 Post Oak Blvd., Ste. 210, Houston, TX 77056. 800-325-3587 or 713-522-5625. (Sept '88) [MF#1550]

**Rival 🐭🐭🐭🐭🐭**
Rival is an INIT that inspects open files for known viruses. Rival checks files constantly, but delays are hardly noticeable. Also scans disks and does some file repairs. Experienced users can easily add protection against newly discovered viruses. Version 1.0 reviewed. Version 1.19 shipping. Requires System 6.03 or later. $99. Microseeds Publishing, Inc., 5801 Benjamin Ctr. Dr., Ste. 103, Tampa, FL 33634. 813-882-8635. (Sept '90) [MF#1551]

**SAM (Symantec AntiVirus for Macintosh) 🐭🐭🐭🐭🐭**
SAM offers powerful, effective virus protection. An easy upgrade procedure lets registered users update SAM to fight new viruses by calling Symantec's 24-hour Virus Newsline. The INIT portion, SAM Intercept, can track and intercept as many as 14 categories of Mac events, from relatively innocent operations (such as copying applications to disk) to potentially insidious code changes in files. Includes Virus Clinic, an application for batch-checking older files that may be infected. Easy to use and easily modifiable for special needs. New feature allows networked users to access single virus-definitions file on central server. Version 3.0 reviewed. Requires Mac Plus or later and System 6.03 or later. $99. Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014. 800-441-7234 or 408-253-9600. (Aug '91) ★ '89 Eddy [MF#1552]

**SecureInit 🐭🐭🐭🐭**
SecureInit locks files and folders, makes the System Folder invisible, erases files not on its user-specified approved list, locks disks after use, replaces specified files with clean copies after use, and password-protects everything. Also purges files as a disk fills up, but this is too dangerous to use in many cases. Particularly good at resisting efforts to bypass it. Version 2.3 shipping. Requires Mac Plus or later. $99.95. Direct Software, Inc., 1032 Irving St., Ste. 513, San Francisco, CA 94122. 415-347-1590. (Aug '90) [MF# 1553]

**ultraSECURE 🐭🐭🐭🐭**
ultraSECURE offers a powerful, hierarchical data-protection system. Implementation is structured and rigid, allowing users access to their own files and to those belonging to anyone below them in the hierarchy. Includes basic virus protection and good data-

**MICE RATINGS** .......🐭 ........🐭½ ............🐭🐭 ..............🐭🐭½ ...............🐭🐭🐭 .............🐭🐭🐭½ ............🐭🐭🐭🐭 ...........🐭🐭🐭🐭½ .............🐭🐭🐭🐭🐭

**FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.**

eradication tools that meet NSA standards. Can protect against floppy-drive access, floppy or SCSI initialization, and file- or folder-related operations (creation, deletion, renaming). Uses convenient self-installing script, a system extension, and two DAs controlling volume access and group security levels. File-encryption methods include DES, Double DES, and ultraSECURE's own ultraCRYPT. Can use a key disk instead of passwords to provide access. Poor manual. Version 1.2 reviewed. Requires Mac Plus or later and a hard-disk drive. $290. usrEZ Software, 1202 E. Pike St., Ste. 588, Seattle, WA 98122. 206-672-5387. (May '92) [MF#1554]

**Virex 🐭🐭🐭🐭½**

Virex is a virus preventer, detector, and eradicator that works against known viruses. Excellent support and update history. Installation process is simple enough for novices. The new Virex AppleShare Installer (available free to customers with site licenses or ten-packs of Virex) is designed for use on an AppleShare file server. System-7-compatible, but features limited to Balloon Help. Version 3.2 reviewed. Requires Mac Plus or later and System 4.2 or later. $99.95; ten-user pack, $599. Microcom Software Division, P.O. Box 51489, Durham, NC 27717. 919-490-1277. (Aug '91) [MF#1555]

## WORD PROCESSING

**Bookends Mac II 🐭🐭🐭½**

Bookends Mac II is a set of HyperCard stacks that provides bibliographic-database management in conjunction with a word processor. Creates a formatted bibliography from citations in a text document. Lacks flexibility in editing and use of formatting styles. Alerts users to unmatched or multiple-matched references. Can save completed bibliography as an RTF text file (containing font and style variations) usable by most word processors. Offers fast but limited find and select capabilities. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later with 2 MB of RAM, HyperCard 2.1, and a hard-disk drive. $129.95. Sensible Software, Inc., 20200 East Nine Mile Rd., Ste. 150, St. Clair Shores, MI 48080. 800-394-4669 or 313-774-7215. (Sept '91) [MF#1556]

**Correct Letters 🐭🐭🐭🐭**

Correct Letters is a good source of model business letters. Final writing can be done inside program or with separate word-processing application. Good interface. Needs more categories for letter searching. Version 1.0 reviewed. Requires Mac Plus or later, System 5.0 or later, and a hard-disk drive. $49.95. WordStar International, Inc., 201 Alameda del Prado, Novato, CA 94949. 800-523-3520 or 415-382-8000. (July '92) [MF#1557]

**Correct Writing 🐭🐭🐭🐭½**

Correct Writing provides useful information on writing form, usage, and style. Can be used as a DA. Good interface and comprehensive index. Needs to cover more subjects and should include better cross-referencing. Version 1.0 reviewed. Requires Mac Plus or later, System 5.0 or later, and a hard-disk drive. $59.95. WordStar International, Inc., 201 Alameda del Prado, Novato, CA 94949. 800-523-3520 or 415-382-8000. (July '92) [MF#1558]

**DocuComp 🐭🐭🐭🐭½**

DocuComp is a utility that lets you compare two versions of a word-processing document. Inserted text in the newer document is shown with underlining, and moved text appears in boldface. Older document shows deleted and moved text with strikeover characters. An excellent reporting feature details all revisions made to a document. A definite winner, DocuComp supports popular word-processing applications such as Microsoft Word. Version 1.5 reviewed. Version 2.0 shipping. Requires Mac Plus or later and System 6.03 or later; hard-disk drive recommended. $179.95. Advanced Software, Inc., 1095 E. Duane Ave., Ste. 103, Sunnyvale, CA 94086. 800-346-5392 or 408-733-0745. (Feb '91) [MF#1559]

**EndNote Plus 🐭🐭🐭🐭🐭**

EndNote Plus provides excellent bibliographic-database management in conjunction with a word processor. Allows formatted in-text citations to be pasted directly into a word-processing document and then creates a bibliography from the citations. Use of editable formatting styles allows global changes to all citations and the bibliography. Includes predefined reference types and publication styles for most common bibliographic formats. Compatible with Word, WordPerfect, WriteNow, MacWrite, and ASCII text documents. Runs as an application or as a DA. Offers fast find and sort capabilities. Version 1.0 reviewed. Version 1.2 shipping. Requires Mac Plus or later and a hard-disk drive. $249. Niles & Associates, Inc., 2000 Hearst St., Ste. 200, Berkeley, CA 94709. 510-649-8176. (Sept '91) [MF#1560]

**Expressionist 🐭🐭🐭🐭**

Expressionist is a program designed to make writing mathematical equations easy. It can be installed either as a DA or as an application. Flexible and has good documentation for word-oriented applications. Version 2.03 reviewed. Version 3.0 shipping. Requires Mac Plus or later. $199.95. Prescience, 939 Howard St., San Francisco, CA 94103. 800-827-6284 or 415-543-2252. (July '90) [MF#1561]

**FullWrite Professional 🐭🐭🐭🐭**

Stable and easier to use than previous versions, FullWrite Professional 1.5 combines outlining and word-processing with page-layout and drawing capabilities, but it lacks some professional features. The program can import documents created in some versions of Word, MacWrite, WordPerfect (for PCs or Mac), Multimate, and Advantage; many of these conversions are made via a separate program, Word for Word. Also includes Tycho Table Maker, which creates tables that are suitable for pasting into (but not editing in) FullWrite Professional. Version 1.5 reviewed. Requires Mac Plus or later with 2 MB of RAM and a hard-disk drive. $249 Borland International, Inc., 1800 Green Hills Rd., Scotts Valley, CA 95066. 800-331-0877 or 408-438-5300. (Apr '91) [MF#1562]

**Instant Update 🐭🐭🐭🐭**

Instant Update scores highly as both a word processor and a networkable "groupware" application. Allows multiple users to collaborate simultaneously on text documents. Users work locally on live copies of a master document stored on a server, which automatically updates all users. Provides intuitive interface, especially for those experienced with electronic-mail systems such as QuickMail. Reliably prevents conflicts when more than one user tries to alter the same paragraph, but needs improved system for tracking changes and locking portions of documents. Supports Claris XTND filters for exporting or importing formatted text from other applications. Documents can include graphics and tables. Version 1.0 reviewed. Requires AppleTalk network; dedicated AppleShare server recommended for 20 or more users. Two-user pack, $495; five-user pack, $995; volume discounts and site licenses available. ON Technology, Inc., 155 Second St., Cambridge, MA 02141. 617-876-0900. (Jan '92) [MF#1563]

**Last Resort 🐭🐭🐭🐭½**

Last Resort is an INIT and control panel that can recover your most recent work on text files when all else has failed. As you work in an application, Last Resort transparently captures all your keystrokes and and saves them as text files in the System Folder. As long as you remember to clean out these files occasionally, this utility is trouble-free and potentially a godsend. Provides Pause mode to prevent capture of passwords or other confidential information. Compatible with System 7. Version 1.0 reviewed. Requires System 6.03 or later and a hard-disk drive. $49.95 direct. Working Software, Inc., P.O. Box 1844, Santa Cruz, CA 95061. 408-423-5696. (Sept '91) [MF#1564]

**Letter Writer Plus 🐭🐭🐭🐭½**

Letter Writer Plus is a DA for creating correspondence on the fly. It can use Address Book Plus files as well as text and comma- or tab-delimited files. The interface of this large DA has some rough edges. Excellent envelope printer and mail-merge facility. Good text handling. Version 1.0 reviewed. Version 1.02 shipping. Requires Mac Plus or later. $89.95. Power Up Software Corp., 2929 Campus Dr., San Mateo, CA 94403. 800-851-2917 or 415-345-5900. (May '90) [MF#1565]

**LetterWorks 🐭🐭🐭🐭**

LetterWorks is a book of 401 sample business letters. Letters come in text format on-disk, so any word-processing program can open them. Version 1.0 reviewed. Requires Mac Plus or later. $79.95. Round Lake Publishing, Inc., 31 Bailey Ave., Ridgefield, CT 06877. 203-438-5255. (Mar '90) [MF#1566]

**MacWrite II 🐭🐭🐭🐭½**

MacWrite II offers useful word-processing features along with an excellent interface. Has a search-and-replace function plus elegant multiple-column and mail-merge functions. Includes spelling checker. Supports footnotes but not style sheets. With its open hooks for PC and Mac file translators, MacWrite II is an excellent choice for mixed environments. Version 1.1v2 reviewed. Requires Mac Plus or later; hard-disk drive recommended. $129. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (June '92) ★ '85 Eddy [MF#1567]

**miniWriter 🐭🐭🐭🐭½**

miniWriter is a word-processing DA that has a slick feel and is easy to use. Features include smart (curly) quotes, a Find function, and the option to set the typeface and size for the whole document but not for individual words. Designed for dot-matrix printers, it also prints on laser and inkjet printers. Version 1.6 reviewed. Version 1.73 shipping. Shareware, $12. Maitreya Design, P.O. Box 12085, Eugene, OR 97440. 503-342-2834. (Oct '90) [MF#1568]

**Nisus 🐭🐭🐭🐭½**

This high-end word processor has an intuitive design and is easy to learn, but it has a range of menu options that will intimidate novices (no Short Menus option is provided). The program is aimed at technically proficient users who need extensive control over long documents. Graphics handling has been greatly improved and now includes Page Graphics, a surprisingly powerful system with basic DTP functions. Part of Nisus' power is due to its extensive searching and macro capabilities. File size is limited primarily by the Mac's available RAM.

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FOR MORE INFORMATION, CIRCLE THE MINIFINDER NUMBER [MF#] ON THE READER SERVICE CARD.

Supports multiple columns, footnootes, and style sheets. Has glossary and spelling checker. Version 3.06 reviewed. Requires Mac Plus or later; hard-disk drive recommended. $395. Nisus Software, Inc., P.O. Box 1300, 107 S. Cedros, Solana Beach, CA 92075. 800-922-2993 or 619-481-1477. (June '92) [MF#1569]

**QUED/M 🐁🐁🐁🐁½**

QUED/M is an excellent DA text editor. Saves documents in a form readable by most computers and printers. Doesn't support graphics or multiple fonts. Programming language allows database creation. Can build complex search-and-replace patterns. Macros feature lets it function as appointment book or text database. Version 2.07 reviewed. Version 2.09 shipping. Requires Mac 512Ke or later. $119. Nisus Software, Inc., P.O. Box 1300, 107 S. Cedros, Solana Beach, CA 92075. 800-922-2993 or 619-481-1477. (Feb '90) [MF#1570]

**RésumExpert 🐁🐁🐁🐁**

RésumExpert is a set of résumé templates with a superb manual. Versions for Word 3.0 and 4.0 and for Works are available at the same price. Requires Mac Plus or later, Microsoft Word, MacWrite, or WriteNow. $95. A Lasting Impression, 49 Thornberry Rd., Winchester, MA 01890. 617-721-2037. (Oct '89) [MF#1571]

**Sonar Bookends 🐁🐁🐁**

Sonar Bookends is designed to create indexes for long documents. Has some interface flaws and lacks editing tools. Provides a variety of Boolean selection options for creating phrase lists. Doesn't require special indexing characters or text-marking procedures. A good choice if your word processor lacks built-in indexing. Version 2.2 reviewed. $129.95. Virginia Systems, Inc., 5509 W. Bay Ct., Midlothian, VA 23112. 804-739-3200. (Dec '91) [MF#1572]

**Stylist 🐁🐁🐁🐁**

Stylist is a utility that deciphers and fully describes formatting style sheets in Microsoft Word. Although you can't alter Word style sheets from within Stylist, you can dissect style sheets created by other Word users. A set of useful predesigned style sheets and a supplementary electronic dictionary of computer terms (to use with Word's spelling checker) is included. Version 1.0 reviewed. Requires Mac Plus or later, System 6.05 or later, and Word 4.0 or later. $79.95. SNA, Inc., P.O. Box 3662, Princeton, NJ 08543. 800-628-6442 or 609-799-9605. (Feb '91) [MF#1573]

**Taste 🐁🐁🐁🐁**

Taste is a midrange word processor that also provides excellent color drawing tools and simple database functions. Graphics features include Bézier curves, color gradient fills, transparent editing with view of the surrounding text, and automatic text wrap inside or outside graphic borders. Database features are oriented toward name-and-address management, but resulting mail-merge capability is well implemented. Imports and exports most popular word-processing formats. Lacks advanced features but easy to use. Supports footnotes, multiple columns, and style sheets. Includes spelling checker. Version 2.0 reviewed. Requires Mac Plus or later with 2 MB of RAM, System 6.03 or later, and a hard-disk drive. $149. DeltaPoint, Inc., 2 Harris Court, Ste. B-1, Monterey, CA 93940. 800-367-4334 or 408-648-4000. (June '92) [MF#1574]

**Vantage 🐁🐁🐁🐁**

Vantage is a text-editor DA and the commercial version of the shareware program McSink. Changes case; counts the number of lines, words, sentences, or paragraphs in a selection; and searches and replaces on character strings (including invisibles). Supports macros and external commands written in Pascal. Includes a spelling checker. Version 1.12 reviewed. Version 1.5.1 shipping. Requires Mac 512Ke or later. $99.95. Baseline Publishing, Inc., 1770 Moriah Woods Blvd., Ste. 14, Memphis, TN 38117. 800-926-9677 or 901-682-9676. (July '89) [MF#1575]

**Word 🐁🐁🐁🐁½**

Word has excellent speed and a huge list of useful features, including simplified control of stylesheets and type fonts. New version is significantly more intuitive. Includes a Ribbon bar (above the ruler) that controls a drawing module, point-and-click character formatting, and the arrangement of text columns. Also includes sophisticated new Find File tool for complex searches through multiple documents. Table command lets you create multicolumn tables of text and graphics easily. Has hot links to Excel and Microsoft Mail. Includes enough basic DTP capabilities to format almost any document without compromising its performance as a dedicated, professional-quality word processor. Version 5.0 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $495; upgrade, $129. Microsoft Corp., One Microsoft Way, Redmond, WA 98052. 800-426-9400 or 206-882-8080. (June '92) ★ '89 Eddy [MF#1576]

**WordMaker 🐁🐁🐁½**

This inexpensive basic program supports as many as ten open documents, imported color graphics, and mail-merge but has limited features and import capabilities. Good manual. If you share documents with a variety of other Mac users, you might prefer Word, MacWrite II, or WriteNow. Version 1.01 reviewed. Requires Mac 512Ke or later and System 4.1 or later. $124.95. New Horizons Software, Inc., 206 Wild Basin Rd., #109, Austin, TX 78746. 512-328-6650. (Jan '91) [MF#1577]

**WordPerfect 🐁🐁🐁🐁**

This substantially improved version of WordPerfect is a good choice for offices needing PC compatibility. Doesn't have many of the awkward-interface problems of previous versions. Good internal file-management system, graphics manipulation, and macro maker. WordPerfect excels at multiple, varied-width columns and basic page-layout functions. Limited typographic controls. Supports footnotes and style sheets. Includes spelling checker. Mac word-processing professionals may prefer the speed of Microsoft Word, which also has direct PC/Mac file compatibility. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later, System 6.05 or later, and a hard-disk drive. $495. Word–Perfect Corp., 1555 N. Technology Way, Orem, UT 84057. 800-451-5151 or 801-225-5000. (June '92) [MF#1578]

**WriteNow 🐁🐁🐁🐁½**

This fast word processor comes bundled with Grammatik Mac (a 1.4-million-word thesaurus) and templates for Avery mailing labels. Easy to learn and use, WriteNow allows multiple headers and footers. You can't set top and bottom margins, however, and multiple columns are limited to four. Version 2.2 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 4.2 or later; hard-disk drive recommended. $249. T/Maker Co., 1390 Villa St., Mountain View, CA 94041. 415-962-0195. (Jan '91) ★ '86, '88 Eddy [MF#1579]

**Writer's Dream Tools 🐁🐁🐁🐁**

Writer's Dream Tools is a set of five highly informative HyperCard stacks. The Clichés and Catchphrases stack is fascinating. There's also a Slang stack plus Events Day-by-Day, The Stack of Decades, and the Stack of Lists. Allows wild-card searches. Poorly implemented interface. Version 1.0 reviewed. Requires HyperCard 2.1 (included) and a hard-disk drive. Five-stack set, $149. Heizer Software, P.O. Box 232019, Pleasant Hill, CA 94523. 800-888-7667 or 510-943-7667. (July '92) [MF#1580]

## WORD PROCESSING/ OCR

**AccuText 🐁🐁🐁🐁**

AccuText is an automatic omnifont OCR program built on several expert systems that combine shape and context analysis. Can read poorly copied multipage documents. Has preview window for manually selecting and arranging blocks of text. Good page-format preservation. No built-in editor for viewing recognized text before saving to a file. Version 1.1 reviewed. Version 3.0 shipping. Requires accelerated Mac SE or higher with 4 MB of RAM, System 6.03 or later, and a hard-disk drive. $995. Xerox Imaging Systems, Inc., 9 Centennial Dr., Peabody, MA 01960. 800-248-6550 or 508-977-2000. (July '90) [MF#1581]

**CDP 9000/TopScan for the Macintosh 🐁🐁🐁🐁🐁**

The CDP 9000/Top Scan consists of the CDP 9000, which is a large scanner, and TopScan software, which installs on your hard disk. Recognition processing is blazingly fast and highly accurate. Attractive Mac interface, including a window that previews the current page. Requires Mac Plus or later with hard-disk drive. $31,950. Calera Recognition Systems, 475 Potrero Ave., Santa Clara, CA 94086. 800-544-7051 or 408-720-8300. (Nov '90) [MF# 1582]

**OmniDraft 🐁🐁🐁🐁½**

OmniDraft is an add-on that improves OmniPage's ability to recognize dot-matrix characters. Becomes part of OmniPage after installation and adds a check box for dot-matrix-text recognition. Produces fairly accurate scans. Version 1.0 reviewed. Requires OmniPage 2.1. $100. Caere Corp., 100 Cooper Ct., Los Gatos, CA 95030. 800-535-7226 or 408-395-7000. (Sept '90) [MF#1583]

**OmniPage Professional 🐁🐁🐁🐁½**

OmniPage Professional is an automatic omnifont OCR program. Works best on complex magazine pages. Strict adherence to shape analysis avoids most substitution errors. Fast and accurate on most pages. Supports a variety of scanners, languages, and output files. Allows designation of multiple zones for scanning and text recognition. Includes integrated spelling checker and module for dot-matrix-text analysis. Supports deferred batch processing and saves training files for later work on pages with difficult typefaces or special characters. Comes with Graphic Editor program for processing gray-scale images and scanned graphics. Supports AccuPage contrast-control technology available in some Hewlett-Packard scanners. Version 2.0 Pro reviewed. Requires Mac II series or higher with 5 MB of RAM, System 7 or later, and a hard-disk drive. $995. Caere Corp., 100 Cooper Ct., Los Gatos, CA 95030. 800-535-7226 or 408-395-7000. (June '92) ★ '89 Eddy [MF#1584]

**OmniProof 🐁🐁🐁½**

OmniProof is a document-comparison program that compares any two versions of a file and gives a detailed report. Shows where text has been moved, deleted, or changed. Can also print document with revision bars to show editing. Sold as a companion to OmniPage, but OmniProof is really a separate program. Version 1.0 reviewed. Requires Mac Plus or later. $150. Caere Corp., 100 Cooper Ct., Los Gatos, CA 95030. 800-535-7226 or 408-395-7000. (Sept '90) [MF#1585]

**Read-It! O.C.R. Pro 🐭🐭🐭½**
Read-It! O.C.R. Pro is an affordable, capable OCR package that won't set any speed records. Omnifont capability recognizes most common typefaces and is available in Automatic mode. Recognizes multiple columns, italics, and some foreign characters but not underlined text. If your Mac is low on RAM, the program allows for slower Trainable mode which may still provide adequate speed and still adapts well to most foreign-language or special fonts. Provides no visual feedback to inform users of recognition problems as OCR progresses. Supports hand-held scanners. Version 3.0 reviewed. Version 4.0 shipping. Requires Mac Plus or later with 4 MB of RAM, a hard-disk drive, and a flatbed scanner. $595. Olduvai Corp., 7520 Red Rd., Ste. A, South Miami, FL 33143. 800-822-0772 or 305-665-4665. (Mar '92) [MF#1586]

**ReadRight for Macintosh 🐭🐭🐭½**
ReadRight is an affordable, capable OCR package that won't set any speed records. Provides accurate text recognition even of poor-quality material. Has some advanced features such as template support and page-decomposition tools. Provides Error Check window to inform users of recognition problems. Doesn't support hand-held scanners. Version 1.0 reviewed. Requires Mac SE or later with 5 MB of RAM, a hard-disk drive, and a flatbed scanner. $495. OCR Systems, 1800 Byberry Rd., Ste. 1405, Huntingdon Valley, PA 19006. 215-938-7460. (Mar '92) [MF#1587]

**WordScan Plus 🐭🐭🐭🐭½**
WordScan Plus is a powerful OCR package that, despite its Windows heritage, adheres well to Mac-software standards. Easy to use but also very accurate and easily adapted to a variety of input. Can handle scanned TIFF, EPS, or PICT files as well as image files received via fax. Handles graphics and complex page formats well, and Preview mode lets you designate what to scan or ignore. Good automation features will endear this program to DTP service bureaus. Allows deferred batch processing of multiple scanned images. Supports a variety of scanners and automatic document feeders. Version 1.0 reviewed. Requires 5 MB of RAM, System 6.05 or later, and a hard-disk drive. $895. Calera Recognition Systems, 475 Potrero Ave., Santa Clara, CA 94086. 800-544-7051 or 408-720-8300. (Feb '92) ★ '91 Eddy [MF#1588]

### Word Processing/Spelling & Grammar Checkers

**American Heritage Electronic Dictionary 🐭🐭🐭½**
American Heritage Electronic Dictionary is a DA that accesses 116,000 entries from the standard office edition of Houghton Mifflin's American Heritage Dictionary. Accurate and useful, but its clumsy interface doesn't integrate well with other applications. Also includes the complete Roget's II Electronic Thesaurus. Has powerful search features, on-line help, and a basic writer's guide. Version 1.0 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard-disk drive. $89.95. WordStar International, Inc., 201 Alameda del Prado, Novato, CA 94949. 800-523-3520 or 415-382-8000. (Aug '91) [MF#1589]

**Correct Grammar 🐭🐭🐭🐭½**
Correct Grammar is an excellent Mac grammar checker with a high error-detection rate. This rule-based application handles a wide variety of input. The interface is good, but some dialog-box type is too small. Customization is easy and necessary. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later, System 5.0 or later, and a hard-disk drive. $99. WordStar International, Inc., 201 Alameda del Prado, Novato, CA 94949. 800-523-3520 or 415-382-8000. (Sept '91) [MF#1590]

**Grammatik Mac 🐭🐭🐭🐭½**
Grammatik Mac offers good grammar-checking ability and an interface considerably improved from previous versions. Customization of error-checking rules and interface is easy. Creates a copy of a document, with errors marked and diagnosed; the marked document is then corrected in a word-processing program before rechecking in Grammatik Mac. Version 2.0 reviewed. Requires Mac Plus or later. $99. Reference Software International, 330 Townsend St., San Francisco, CA 94107. 800-872-9933 or 415-541-0222. (Sept '91) [MF#1591]

**Inside Information 🐭🐭🐭**
Inside Information is a "hierarchical dictionary," which provides large categories of words you can search through in almost the same way as you do a thesaurus. But it lets you explore subjects, much as a library's traditional card catalog does. It has three search views: outline (with expandable/collapsible headings), the tree view, and the more-intuitive graphic view. A Reverse Dictionary function lets you search for words according to your definition. This feature, like the overall utility, needs refinement and expansion. Version 1.0 reviewed. $119. Microlytics, Inc., Two Tobey Village Office Park, Pittsford, NY 14534. 800-828-6293 or 716-248-9150. (Feb '91) [MF#1592]

**Lookup 🐭🐭🐭½**
Lookup is an interactive single-word spelling checker DA. Uses the 93,000-word Spellswell dictionary as well as specialized dictionaries. Checks any word on the fly. Fast. Version 2.0 reviewed. Version 2.2.1 shipping. Requires Mac Plus or later. $39.95 direct. Working Software, Inc., P.O. Box 1844, Santa Cruz, CA 95061. 408-423-5696. (Feb '90) [MF#1593]

**Sensible Grammar 🐭🐭🐭½**
Sensible Grammar is a useful proofreading program. Above-average grammar-checking abilities. Simple operation uses easy rule editing. Allows interactive- or batch-mode operation. Lacks spelling checker and style templates. Version 1.6.2 reviewed. Version 2.1 shipping. Requires Mac Plus or later and System 5.0 or later. $99.95. Sensible Software, Inc., 20200 E. Nine Mile Rd., Ste. 150, St. Clair Shores, MI 48080. 800-394-4669 or 313-774-7215. (Sept '91) [MF#1594]

**Spelling Coach Professional 🐭🐭🐭**
Spelling Coach Professional 3.0 is a good, powerful spelling checker. New features include a much-improved control panel, clearer dialog boxes, greater flexibility in keyboard-command-equivalent assignments, and Deneba's Big Thesaurus — the best available. Coach can check spelling in batches or interactively. Main drawback is that it takes time and effort to learn. Version 3.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later, System 5 or later, and a hard-disk drive. $195. Deneba Software, 3305 N.W. 74th Ave., Miami, FL 33122. 800-622-6827 or 305-594-6965. (May '90) [MF#1595]

**Spellswell 🐭🐭🐭🐭½**
Spellswell is a stand-alone batch spelling checker. Also checks for punctuation and other errors. Good dictionary, thorough checking, and simple interface but weak guessing. Excellent performance. Version 2.0f reviewed. Version 2.2L shipping. Requires Mac Plus or later. $39.95 direct. Working Software, Inc., P.O. Box 1844, Santa Cruz, CA 95061. 408-423-5696. (Sept '88) ★ '86 Eddy [MF# 1596]

**TechWords 🐭🐭🐭½**
TechWords is a set of seven supplementary dictionaries for use with Microsoft Word. The dictionaries cover scientific areas such as chemistry, physics, life sciences, and computer technology. Word correctly identifies terms contained in these supplementary dictionaries, but such words aren't listed as alternatives when you find incorrect words, using Word's spelling checker. Version 1.0 reviewed. Version 2.0 shipping. $79. Geocomp, 66 Commonwealth Ave., Concord, MA 01742. 508-369-8304. (Feb '91) [MF#1597]

**Thunder 7 🐭🐭🐭🐭½**
Thunder 7 is a powerful upgrade of Thunder!, the venerable and popular spelling checker. Now an extension and control panel, Thunder 7 launches at startup. Users select the dictionaries and applications with which it should run. Checks interactively for spelling, punctuation, capitalization, and double-word errors. Includes application-specific compatibility modules to retain character formatting. Editable glossary. Good use of color. Installation is complicated. Version 1.06 reviewed. Version 1.1 shipping. Requires Mac Plus or later with System 6.03 or later and a hard-disk drive. $99.95. Baseline Publishing, Inc., 1770 Moriah Woods Blvd., Ste. 14, Memphis, TN 38117. 800-926-9677 or 901-682-9676. (July '92) ★ '86 Eddy [MF#1598]

**Word Finder Plus 🐭🐭🐭½**
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**Word Foreign-Language Dictionaries 🐭🐭🐭🐭**
These electronic dictionaries are for use with Word: British (as opposed to U.S. English), French, Spanish, German, Italian, Swedish, and Dutch. Each dictionary acts as a replacement for the standard U.S. English dictionary, so you can use only one dictionary at a time. Without trying to include every word in each available foreign language, these dictionaries can catch any misspelling, incorrect placement of tildes, and even incorrect accent marks. Requires Microsoft Word 4.0. $75 each. Alki Software Corp., 219 First Ave. N., Ste. 410, Seattle, WA 98109. 206-286-2600. (Feb '91) [MF#1600]

**WorksPlus Spell 🐭🐭🐭🐭½**
WorksPlus Spell is a speedy spelling and hyphenation checker for Microsoft Works. It includes a glossary for abbreviations and time/date stamping. Limited to use with Works. Version 2.0 shipping. Requires Microsoft Works. $99.95. Lundeen & Associates, 1000 Atlantic Ave., Alameda, CA 94501. 800-233-6851 or 510-769-7701. (Oct '87) ★ '87 Eddy [MF# 1601]

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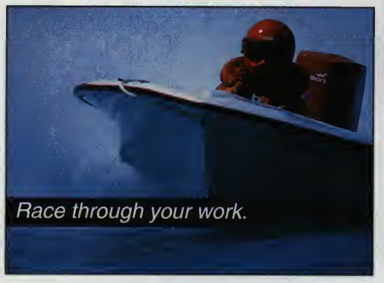
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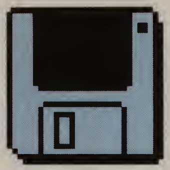
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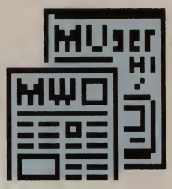

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# Perfection for Pennies: Autosynchronous Monitors

*Can a sharp, bright, affordable monitor dethrone Apple's venerable 13-inch color champ? Fourteen challengers cross over from PC land.*

BY WINN L. ROSCH

One size fits all. The phrase brings to mind discount clothing stores, where the term *fit* is used a bit loosely. *Autosynchronous monitors* — autosyncs, for short — have historically been the one-size-fits-all of personal-computer displays: affordable but of questionable quality. Although popular for IBM PCs and compatibles, they haven't been capable of producing the high-quality images Mac users demand. Until now.

Autosyncs get their name from their ability to automatically adjust to a range of *scan rates* (or *synchronizing rates*), the number of times per second the screen is refreshed. An autosync can accept a variety of video signals from a variety of computers, including the Mac. By contrast, a *fixed-frequency* monitor operates at a single scan rate.

The monitor most familiar to users of color Macs is the fixed-frequency 13-inch AppleColor High-Resolution RGB Monitor, long the monitor of choice for those who want a sharp, bright, colorful display but who don't require — or can't afford — a larger, more expensive color monitor. The AppleColor has a well-deserved reputation for precise focus, excellent color uniformity, and freedom from the myriad tiny imperfections — or, in monitor jargon, *nuisances* — that can mar an otherwise high-quality display.

Although somewhat expensive, the AppleColor has had no serious competition for the title of best-buy basic business monitor; most Macintosh-monitor vendors have focused their efforts on larger monitors for graphics and DTP professionals. Some fixed-frequency competitors to the AppleColor do exist, but most small color monitors have been destined to be attached to PCs. Because of the video-signal anarchy in the PC world, most small color monitors are autosyncs (also known as *multisyncs,* because of their ability to handle multiple synchronizing rates). Because PC owners are currently demanding better and better displays, autosyncs are getting better and better: good enough to challenge — and even dethrone — the AppleColor.

To find out exactly how good the newest autosyncs are, we enlisted the aid of ZD Labs, the new multimillion-dollar testing center created by Ziff-Davis Publishing, *MacUser's* parent company (see the "How We Tested" sidebar). We ran 14 color autosyncs through a more rigorous technical evaluation than we've ever used for testing fixed-frequency monitors (see "Big Screens for Small Macs: Mac LC and IIsi Color Display Systems," February '92, page 156, and "The Perfect Image: True-Color Displays," May '91, Buyer's Guide page 4). After this objective testing was finished, we put each monitor in front of a panel of display experts, who subjectively judged the monitor's image and color quality.

Sometimes, our test equipment detected errors on a scale almost invisible to the human eye — even with the Taxan MultiVision 795's 40-percent misconvergence, for example, the red, green, and blue dots that make up the pixels on this monitor were still close enough for our jurors. At other times, however, the eyes of our expert jury found fault with an overall picture for which test equipment measured only negligible deviations from the norm. Generally, though, the eyes of our jury corroborated the objective findings of our test equipment. If anything, our human testers were more forgiving — and less wide-ranging in their opinions — than the cold, precise eye of the Microvision Superspot 100 System we used for our tests.

### The Going Rates

Before we even began our testing, we discovered some important good news: Because autosync prices are

## When Does 15 = 14 = 13?

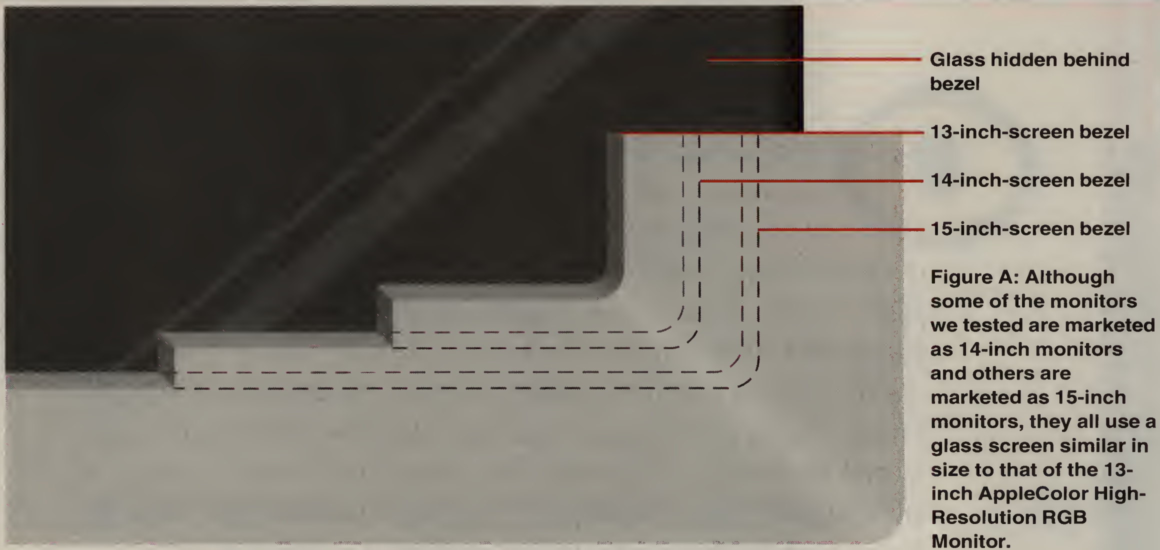


**Figure A: Although some of the monitors we tested are marketed as 14-inch monitors and others are marketed as 15-inch monitors, they all use a glass screen similar in size to that of the 13-inch AppleColor High-Resolution RGB Monitor.**

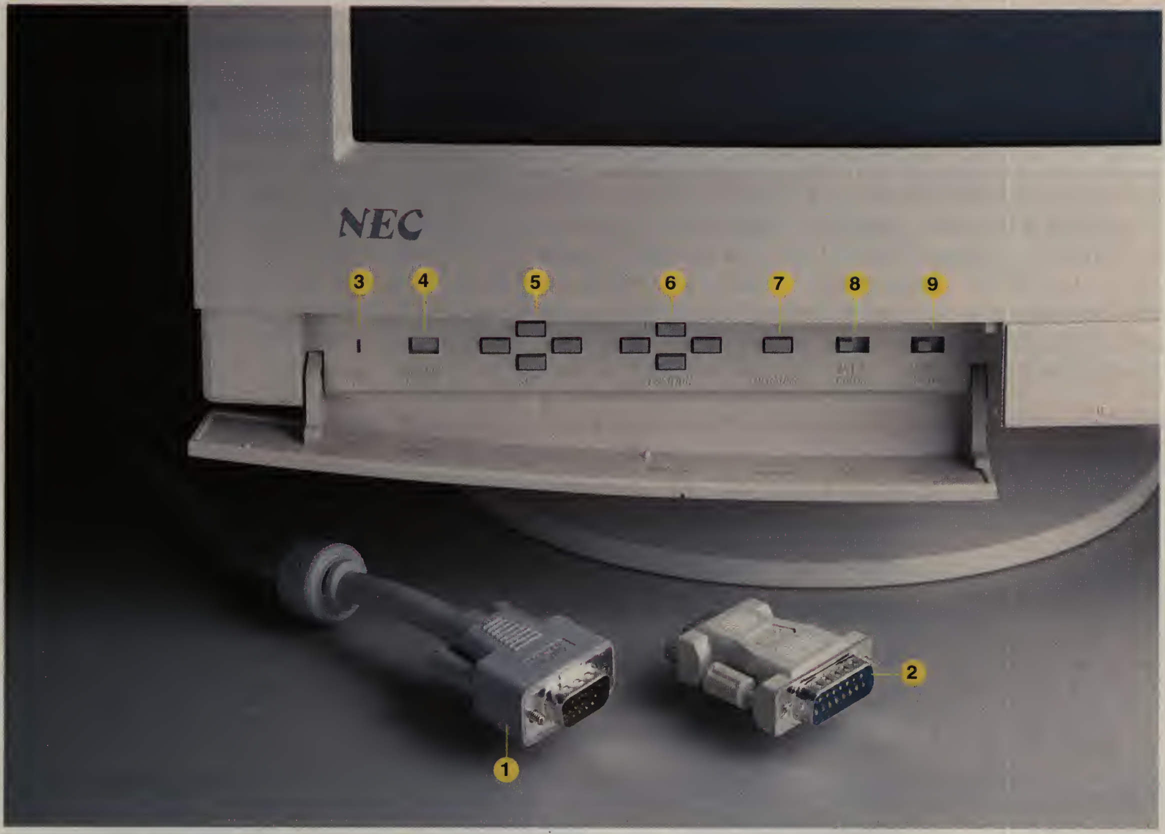
If all the autosynchronous monitors we looked at display the same number of pixels in about the same amount of screen real estate, why do some manufacturers call them 14-inch monitors and others call them 15-inch monitors? And why did we select the 13-inch AppleColor High-Resolution RGB Monitor as our reference standard — aside from the fact that it's by far the most popular Mac color monitor?

The answer is simple: All these monitors have a glass tube of about the same size inside their case, or *bezel.* The stated monitor size arises more from how manufacturers choose to describe and market their product than from how much glass is used. When we measure a screen, we do so diagonally, from one corner of the case to the opposite corner. Some manufacturers measure from the corners of the glass tube itself, which are not visible from the outside. If 2 inches of screen are hidden behind a plastic bezel or visible but not in use, what good are they to you?

At 640 x 480 pixels — the standard Mac video resolution — any extra inches mean little. However, autosyncs can accommodate multiple resolutions, many of which pack more pixels onto the screen. Most of the monitors we looked at can also display the popular 832-x-624-pixel resolution, and those 211,968 extra pixels will welcome the elbowroom.

— Elisa M. Welch

## How It Works: Autosynchronous Monitors



Autosynchronous monitors are compatible with a wide range of computers — PCs as well as Macs. But that flexibility requires several controls for fine-tuning the display to a particular video signal and occasionally requires an adapter for connecting the monitor to the video output of your Mac. Here we illustrate the controls on the NEC MultiSync 4FG.

**1 Input cable and**

**2 Mac-to-VGA adapter**

Many of the autosynchronous monitors we tested have a VGA-style cable permanently attached to their back. Attachment to a Mac requires a Mac-to-VGA adapter, which maps the red, green, blue, and sync signals to the correct pins and emulates an AppleColor High-Resolution RGB Monitor.

**3 Mode-status LED**

This LED lights when NEC's AccuColor and pincushion controls are activated. The alternative functions of the control buttons are listed in the drop-down control-panel cover.

NEC's AccuColor system brings the red, green, and blue adjustments — which other manufacturers often hide inside a monitor's case — outside for user adjustment. These controls let you set your display subjectively or objectively (with a TV analyzer such as the Minolta Color Analyzer CA-100 we used in our testing) to more closely match your viewing environment or your printer.

**4 Memory-recall button**

Newer autosyncs feature digital controls that retain the size and position settings for each incoming frequency, for set-and-forget convenience. Once you've made size and position adjustments for your Mac and another platform (say, a PC), the monitor automatically senses the input frequency and switches to the last settings used with that type of signal. The memory-recall button recalls the memory settings entered at the factory.

**5 Size controls**

Because autosyncs work with so many different video-signal standards, controls for matching the size of the displayed image to the video signal are a must. Up-front controls are the most convenient.

**6 Position controls**

Position controls let you center the displayed image. If you plan to use your display with both a Mac and a PC, choose a model with controls up front or a model with digital memory controls.

**7 Degauss button**

Should your monitor become magnetized by a nearby loudspeaker or telephone headset, it's easiest to degauss (or demagnetize) the display with a degaussing button. Displays that autodegauss on power-up require you to turn the power off and on again to activate the circuitry.

**8 Color switch**

This switch lets you select among the factory defaults (N) and two memory settings (1 and 2) for red, green, and blue levels, adjustable via NEC's AccuColor system.

**9 Sync switch**

Some display cards produce sync signals (the signals that control the timing synchronization between the video-signal source and the monitor) on a separate wire (*separate sync*). Others provide this signal on the green-signal wire (*sync-on-green*). An easy-to-reach switch makes switching among platforms simple.

driven by the number of color PCs (50,000,000+, more than ten times the number of color Macs), they are more in line with PC than with Mac prices: Autosyncs are usually inexpensive. For example, the least expensive autosync we tested, the Samtron SC428V, lists for $549. That's a little more than half the $999 list price of the AppleColor. Even the most expensive monitor we tested, the exceptionally bright $1,095 Taxan MultiVision 795, costs only 10 percent more than the AppleColor.

An extra 10 percent is still a good deal, given that an autosync isn't limited to use with a Mac. If you're buying a few dozen monitors for a business that has Macs as well as PCs, a high-quality autosync usable on both platforms is the perfect solution to inventory confusion.

An autosync operates within a *range* of video rates and not at *all* video rates, so it's critical to choose one that can handle the frequencies sent by the video board in your computer — be it a Mac or a PC. For example, the NEC MultiSync 4FG has a vertical-scan-rate range of 55 to 90 hertz (thousands of cycles per second) and a horizontal-scan-rate range of 27 to 57 kilohertz. The video signal put out from a Mac NuBus video card or from the built-in video in the IIci, IIsi, LC, LC II, or any Quadra is 66.7 hertz vertically and 35 kilohertz horizontally — well within the MultiSync 4FG's range.

The vertical-scan rate, also known as the *frame rate,* tells you how often the entire screen is updated; the horizontal-scan rate tells you how quickly individual lines are painted on the screen. The standard Mac II-family

**Figure 1: Performance of Autosynchronous Monitors**

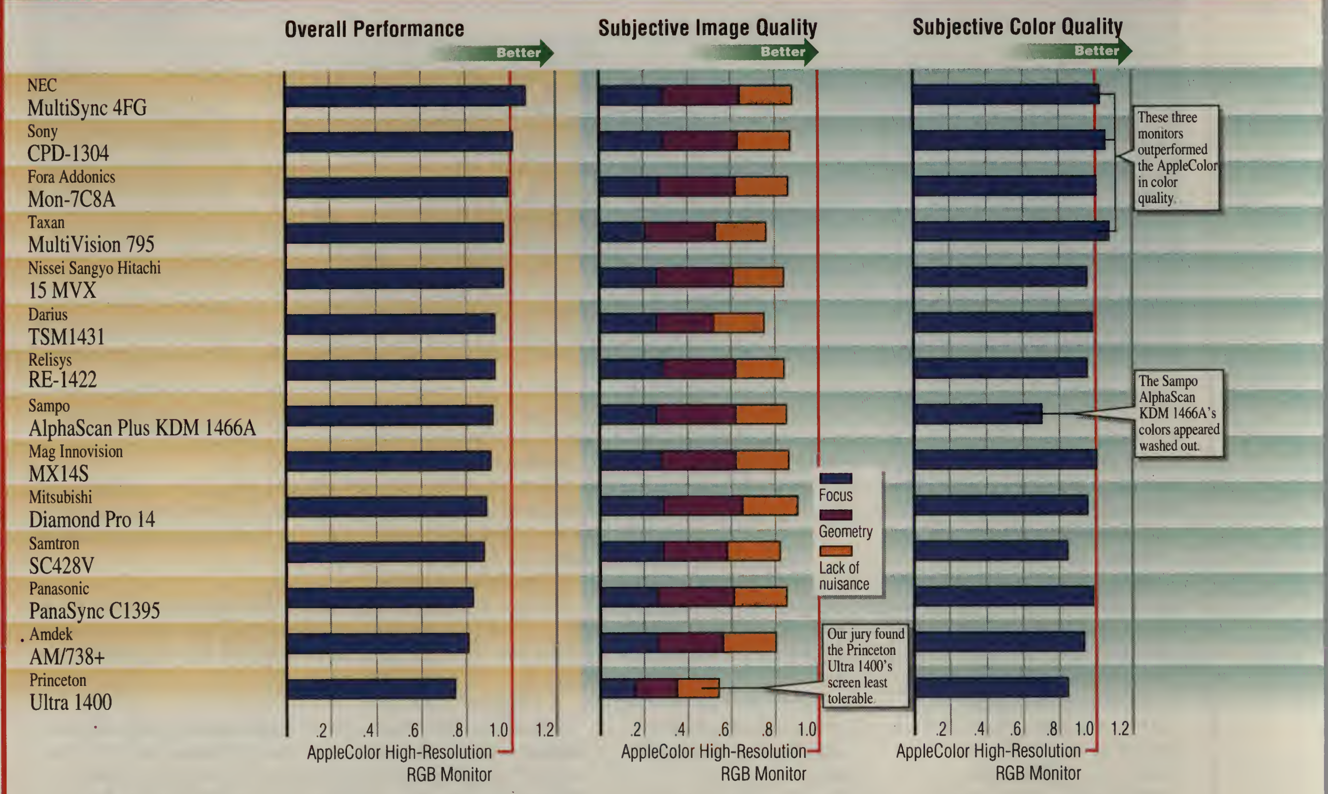


**Figure 1:** Our jury of experts analyzed image and color quality, and our lab technicians tested focus, color quality, and brightness. All results except those for maximum usable brightness show each monitor's performance relative to that of a 13-inch AppleColor High-Resolution RGB Monitor.

**Overall Performance:**

To rank the 14 autosyncs, we gave equal weight to subjective and objective scores. The NEC MultiSync 4FG came out on top, and the Sony CPD-1304 edged out our reference standard, the familiar AppleColor, in the race for second place.

**Subjective Image Quality:**

Our jury analyzed each screen for focus, geometry (how accurately the monitor displayed shapes), and lack of nuisances (such as jitter, swim, and drift). The results were normalized to those of an AppleColor, whose total score of 1.0 represents a score of .33 for each of the three image-quality tests. Except for the Princeton Ultra 1400, all the autosyncs looked pretty good, but none matched the Apple of our eye.

**Subjective Color Quality:**

Our jury scrutinized each monitor's representation of a color palette for accurate pastels and good saturation of primary colors. The bright Taxan MultiVision 795 edged out the Sony CPD-1304 and the NEC MultiSync 4FG; the Sampo AlphaScan Plus KDM 1466A's colors appeared washed out.

video signal is often called a *640 x 480* signal, because it displays a *raster,* or grid of *pixels* (dots), 640 pixels wide and 480 pixels high. The 640-x-480-*pixel dimension,* or *resolution,* is common among PCs as well. All the monitors we looked at can handle this Mac video rate, but if you want to use any of them with a PC, be sure to check the PC's video requirements before you buy.

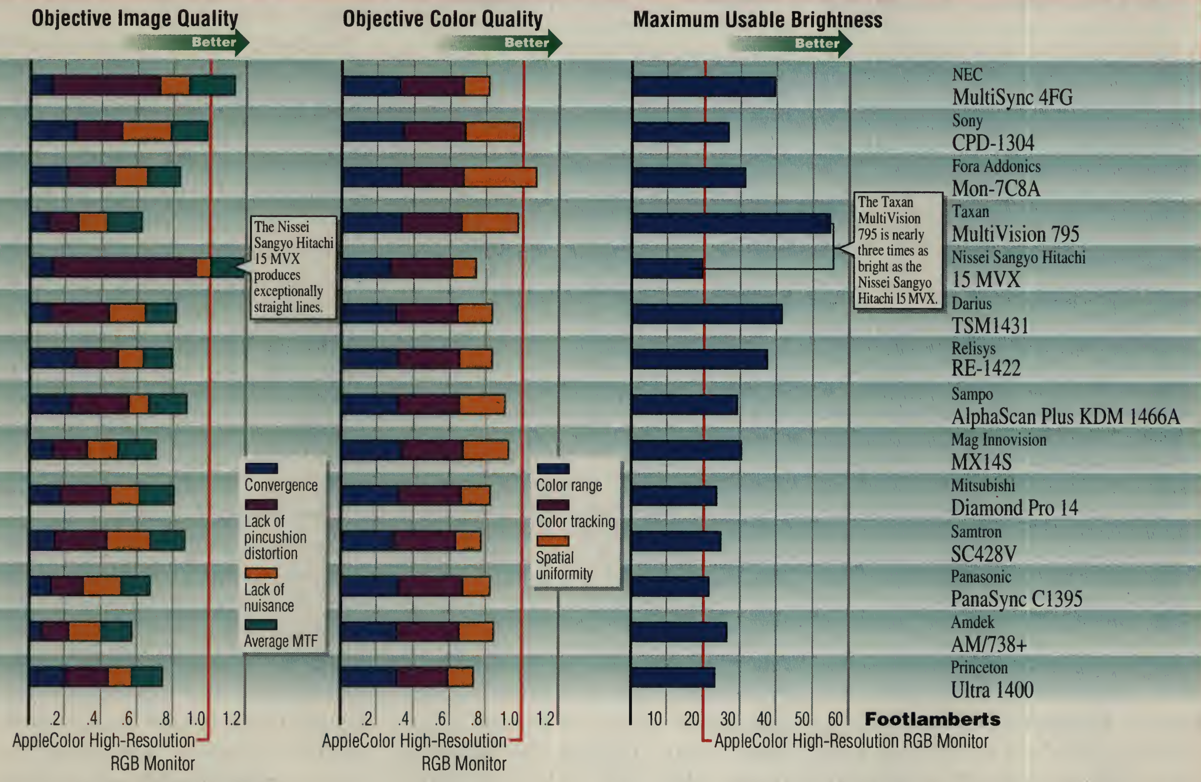
Table 1, which lists common PC video standards as well as their pixel dimensions and horizontal- and vertical-scan rates, can help. Table 2 has the minimum and maximum horizontal- and vertical-scan rates for every autosync monitor we tested.

### PCs Are Your Friends

Mac users have essentially considered autosyncs irrelevant: All they needed was a monitor that scanned at the Mac's rates, which Mac-dedicated monitors did handsomely. They didn't need to bother about VGA, CGA, MCGA — the murky alphabet soups of PC video standards.

Autosync manufacturers focused on displays for PCs and ignored the machine that made graphics mandatory in modern business, the Mac. For example, until quite recently, it was rare for an autosync monitor to be shipped with a Mac cable and most autosync-monitor manufacturers didn't even mention the Mac in their manuals.

But things are changing — rapidly. Microsoft Windows is raising the expectations for PC displays, and the multiplatform office is becoming more and more common. Although manufacturers are finally coming around, Mac support is hardly universal. For



The Nissei Sangyo Hitachi 15 MVX produces exceptionally straight lines.

The Taxan MultiVision 795 is nearly three times as bright as the Nissei Sangyo Hitachi 15 MVX.

**Objective Image Quality:**

We used a Microvision Superspot 100 System to measure convergence, lack of pincushion distortion (how straight a line is on-screen), lack of nuisances, and MTF (modulation transfer function) sharpness. The results were normalized to those of an AppleColor, whose total score of 1.0 represents a score of .25 for each of the four image-quality tests. Only the Nissei Sangyo Hitachi 15 MVX and the NEC MultiSync 4FG outperformed the AppleColor.

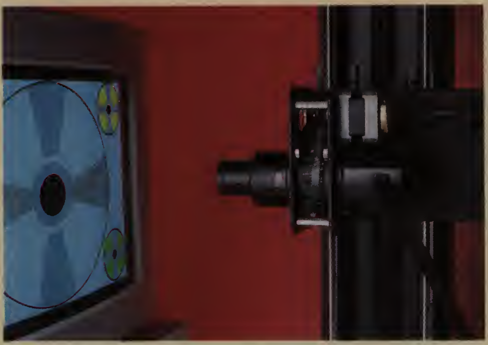
**Objective Color Quality:**

We used a Minolta Color Analyzer CA-100 to measure three aspects of each monitor's color quality: color range, color tracking (how consistently the red, green, and blue phosphors were illuminated at incremental brightness levels), and spatial uniformity (how consistent the monitor's color and brightness remained over the entire screen). Again, the results were compared with those of an AppleColor, whose total score of 1.0 represents a score of .33 for each of the three color-quality tests. Only the Fora Addonics Mon-7C8A outdid the Apple.

**Maximum Usable Brightness:**

A bright screen such as the Taxan MultiVision 795's combats glare, is easy to read for long periods, and allows for high contrast. We measured the maximum brightness before the screen lost sharpness, using a Minolta Color Analyzer CA-100.

## How We Tested



**We used the Microvision Superspot 100 System to precisely measure monitor performance.**

ZD Labs, the new test facility established to provide data for *MacUser* as well as for Ziff-Davis Publishing's other magazines, developed and executed the tests for this report. ZD Labs brought a bevy of test instruments to the task, including one we haven't used before: a Microvision Superspot 100 System, for making precise geometric measurements of the electron beams each monitor produced. This instrument has two parts: an optical detector and a precision positioning system. The optical detector is a linear array of 512 photodiode elements, which focuses on the face of the monitor. Each photodiode samples a tiny slice of the phosphor illumination.

The positioning system allows this sensor to be rotated 90 degrees for sampling in a second dimension. In addition, the positioning mechanism can move the entire detector across the screen while maintaining a constant index of the sensor's location. This allows exact repeatability in making measurements at given screen positions as well as in tracking the sensor's movement across the screen while it follows an image feature, allowing the precise measurement of linear elements. When the location of the positioning mechanism is fixed, the sensors yield direct measurements of line width, convergence, and MTF as well as of three nuisances — jitter, swim, and drift. These terms all refer to the undesirable movement of the beam from side to side or up and down: Jitter is a very fast movement, swim is a slow but perceptible movement, and drift is slower still.

For measuring brightness and color, ZD Labs used a Minolta Color Analyzer CA-100. This instrument has a handheld probe that can sample any spot on a monitor screen. Built in to it are three optical sensors, each filtered to respond to the light of a single color. The CA-100's circuitry derives measurements of several factors simultaneously, including the total image brightness (luminance) and the relative strengths of the three color signals (chrominance). Using the CA-100, ZD Labs ascertained the screen brightness, spatial uniformity of screen illumination, color temperature, color range, gray scale, and color tracking of each monitor.

example, you must order a Mac cable as an option for the Mag Innovision MX14S, Mitsubishi Diamond Pro 14, Panasonic PanaSync C1395, Princeton Ultra 1400, and Sony CPD-1304. All the other autosyncs we tested provide a Mac cable as standard or free on request. The Samtron SC428V was equipped with a connector that didn't fit properly: We had to remove the adapter's fat plastic shell to plug the adapter in to the back of a IIci, although it was fine on an LC or a IIsi.

This cable confusion illustrates a cardinal rule of buying peripherals: Always be sure to specify the appropriate cable, and ask whether it comes standard or as an option (and if so, what it costs). This rule also applies to power cables. The Relisys RE-1422 and Taxan MultiVision 795 come equipped with power cables designed to fit the AC connectors on the back of most Macs and PCs, but the power cables' plugs don't fit into a standard three-prong wall socket. To use either of these monitors with a Macintosh LC, which has no AC outlet for a monitor, you need a hard-to-find adapter. All the other monitors we tested use power cables with standard three-pronged plugs, and the Amdek AM/738+ also includes a European-style cable.

Once you have the right cables, setting up a Mac monitor should be a piece of cake, right? Not necessarily so with autosync monitors: Some have unfamiliar ports (for plugging in unfamiliar PC cables), and most include a variety of buttons and knobs with which Macintosh users may not be familiar. The controls may seem like a nuisance, but they're really a boon: They allow you to adjust the position and color of the image on-screen when you move the monitor from one computer to another (see the "How It Works" sidebar.)

To their credit, the manuals for the Amdek AM/738+, Mitsubishi Diamond Pro 14, NEC MultiSync 4FG, Panasonic PanaSync C1395, and Princeton Ultra 1400 provide specific instructions for connecting the monitors to a Mac (the NEC manual even discusses the Mac LC). On the other hand, the Mag Innovision MX14S instructions note only that you need an adapter, the manual for the Nissei Sangyo Hitachi 15 MVX makes little mention of the Mac, and the documentation from all the other manufacturers ignores the Mac entirely.

### Two Tube Types

Despite a proliferation of cabling schemes, control configurations, and video standards, just two types of *CRTs* (cathode-ray tubes, the guts of every display system) dominate the monitor marketplace. The older technology, *shadow mask,* is used in most of the monitors we tested. The newer one, Sony's *Trinitron* technology, is found in the Fora Addonics Mon-7C8A, Mag Innovision MX14S, Sony CPD-1304, and Taxan MultiVision 795 as well as in our reference standard, the familiar AppleColor High-Resolution RGB Monitor.

Shadow-mask technology is steadily improving, outgrowing the reputation it once had for blotchy, imprecise displays. A shadow mask is a thin metal plate riddled with holes that allows only the correct beam to strike a red, green, or blue phosphor. A shadow mask can heat up and expand at high brightness levels. This effect — called *doming* — can cause a beam to miss its intended target, resulting in a blotchy image. To avoid this, the newest shadow masks — such as the one in the NEC MultiSync 4FG — are made from a material called Invar, which remains stable at high temperatures, allowing for higher brightness levels.

Although shadow-mask technology is improving, one drawback remains: A shadow-mask tube's glass curves inward on all four sides, thus increasing the probability of reflected glare.

Trinitron technology offers excellent focus and a bright display. In a Trinitron CRT, the electron beams pass through an *aperture grille* of fine vertical wires (each with a thickness of about 195 microns, or millionths of a meter). This grille allows only the intended beam to strike either the red, green, or blue phosphor, creating the color you see on the screen.

Materials under greater tension are less susceptible to changes caused by heat, so the tightly stretched wires permit the monitor to operate at higher brightness levels. The Taxan MultiVision 795 — which uses a Trinitron tube — was easily the brightest monitor we tested.

To keep the aperture grille's vertical wires from vibrating, a reinforcing wire is stretched horizontally across the grille, which produces a thin dark shadow across the lower portion of the screen — a faint but permanent line that some people find bothersome. Larger (16- and 19-inch) Trinitron tubes have two of these wires; the second one is stretched across the upper portion of the grille. The glass face of a Trinitron monitor curves in at the sides only and not at the top or bottom, thus reducing reflected glare.

Both technologies allow for powerful electron beams that can produce bright displays. The stronger the beam, the wider it gets, however, and the wider it gets, the poorer its focus becomes. Apple chose to limit the brightness of its AppleColor monitor — it was the second-dimmest in our tests (see Figure 1) — to keep the beams narrow and the image sharp. Although the AppleColor produces an exceptionally sharp image, we prefer monitors that let you adjust the brightness and judge for yourself at what point you want to make the trade-off between brightness and focus.

### Seeing Is Believing

Brightness is important if you and your Macintosh reside in a sunlit office, but if you work mostly with text,

**Figure 2: Pretty Pictures for a Pittance**

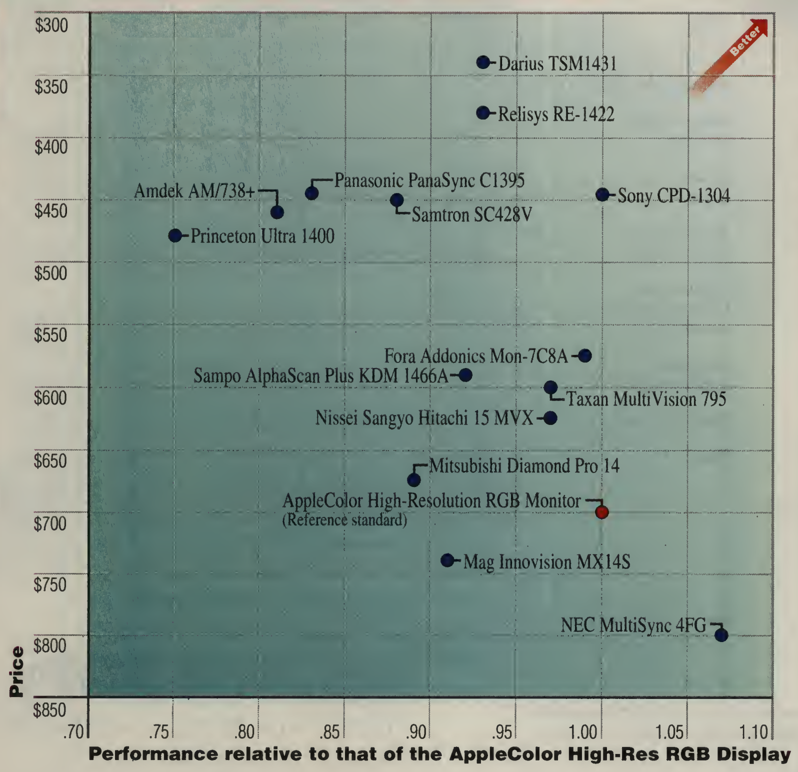


**Figure 2: To find the best autosync monitor for the money, we compared each monitor's street price with its overall performance rating, averaging the results of all tests — objective as well as subjective. The monitors closest to the top right are inexpensive yet did well in all tests. Those closest to the bottom left are more expensive and performed relatively poorly.**

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|---|---|---|---|---|---|
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| Internal Floppy Standard | YES | No | YES | Yes | YES |
| Processor Speed | 68000<br>20 MHz | 68000<br>16 MHz | 68030<br>20 MHz | 68030<br>16 MHz | 68030<br>25 MHz |
| Maximum Hard Drive Available | 120 MB | 40 MB | 120 MB | 80 MB | 120 MB |
| Full size silent keyboard and true notebook size | YES | No | YES | No | YES |
| Maximum RAM Available | 4 MB | 8 MB | 4 MB | 8 MB | 14 MB |
| Math Coprocessor | No | No | Optional | No | Optional |
| Price | $1999<br>2000/220<br>2 MB RAM<br>20 MB HD | $1599<br>100/220<br>2 MB RAM<br>20 MB HD<br>Ext. floppy | $2799<br>2030/440<br>4 MB RAM<br>40 MB HD | $2999<br>140/440<br>4 MB RAM<br>40 MB HD | $3299<br>2030E/440<br>4 MB RAM<br>40 MB HD |

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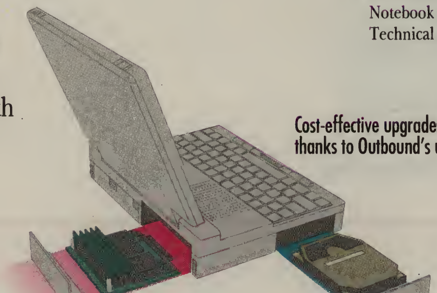

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| APPLE POWERBOOK 170 | OUTBOUND NOTEBOOK 2030S |
|---|---|
| No | YES |
| Yes | YES |
| 68030<br>25 MHz | 68030<br>33 MHz |
| 80 MB | 120 MB |
| No | YES |
| 8 MB | 14 MB |
| Yes | Optional |
| $4299<br>170/440<br>4 MB RAM<br>40 MB HD | $3899<br>2030S/440<br>4 MB RAM<br>40 MB HD |

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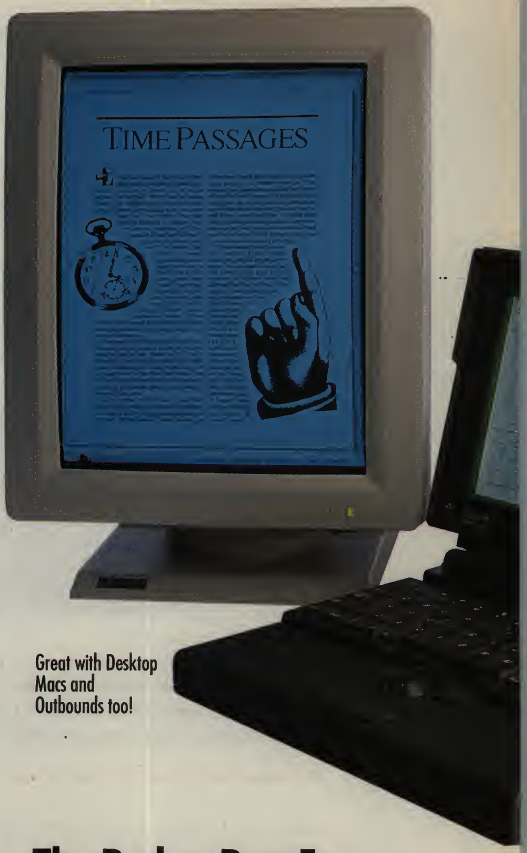

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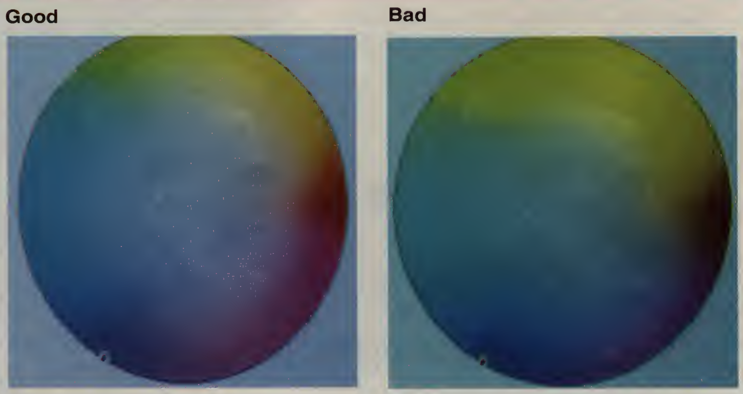
### Figure 3: Color Tracking



Good

Bad

**Figure 3: The consequences of poor color tracking are readily visible. The Fora Addonics Mon-7C8A (left) scored high marks in our color-tracking test, whereas the Princeton Ultra 1400 suffered from weak illumination of its red and blue phosphors, resulting in a green-tinted screen image.**

numbers, or wire-frame drawings, you may be happy to trade brightness for *sharpness* — how well you can see each detail in the on-screen image. When an image appears fuzzy, your eye constantly tries to focus on it better. This repetitive muscular adjustment can lead to eyestrain.

A monitor appears sharp when you can distinguish fine lines on the screen. The darker the line and the lighter the background, the better. Historically, PC users — especially pre-Windows command-prompt types — were accustomed to viewing displays that had bright characters on dark backgrounds. In order to blend the individually lighted pixels into smooth, solid characters, monitor designers emphasized brightness over sharpness. Mac users and now Windows folks as well spend more time viewing dark lines on light backgrounds. This has brought about a trend toward sharper definition rather than brightness.

The measurement of a monitor's sharpness is called its *MTF,* or modulation transfer function. Essentially, a monitor's MTF is the ratio between the darkness of a line and the brightness of its background, expressed as a percentage. We found that the NEC MultiSync 4FG had an excellent MTF, 74 percent; the rest ranged from 47.5 (the Relisys RE-1422) to 63 percent (the Mag Innovision MX14S).

Another factor that influences sharpness is *convergence* — how close a monitor's three electron beams stay to each other. In a color monitor, each of the beams should strike exactly the same physical area, even though the individual beams hit separate phosphors. When a beam misses — or fails to *converge* with — the other beams, a rainbow outline, or halo, appears. This misconvergence is measured as a percentage of pixel size. In our tests, most of the monitors kept convergence errors to an acceptable level, below about 30 percent of the pixel size. Only the Amdek AM/738+ had noticeably poor convergence.

### Color My World

Sharpness, although important, is only one aspect of monitor performance. The ability of a display to accurately present the colors you expect is critical for graphic artists; DTP professionals; and other users working with continuous-tone images, photo retouching, and video. You can't make adjustments if you can't see what you're doing.

The color capabilities of monitors differ in several ways. Some display a

### Table 1: Video Standards

| PC video standard | Pixel dimensions | Horizontal-scan rate | Vertical-scan rate |
|---|---|---|---|
| MDA | 720 x 350 | 18.3 kHz | 50 Hz |
| CGA | 640 x 200 | 15.75 kHz | 60 Hz |
| EGA | 640 x 350 | 21.5 kHz | 60 Hz |
| VGA | 640 x 480 | 31.5 kHz | 60 or 70 Hz |
| MCGA | 640 x 480 | 31.5 kHz | 60 or 70 Hz |
| VESA | 800 x 600 | 48 kHz | 72 Hz |

**Table 1:** PC video standards can be intimidating until you understand what all the letters mean. Generally, they refer to the type of video board in the computer. The board sends the video signal to the monitor. We've listed the standards in the order in which they were introduced.

**MDA (Monochrome Display Adapter):** used with single-color (think green) displays.

**CGA (Color Graphics Adapter):** the first IBM board to work with color monitors, offering 16 colors (including black, dark gray, light gray, and white).

**EGA (Enhanced Graphics Adapter):** offers several improvements over CGA, including increased on-screen resolution and 64 colors (still including black, two grays, and white).

**VGA (Video Graphics Adapter):** built in to IBM's PS/2 computers, offering still better resolution and 256 colors on-screen simultaneously.

**MCGA (Memory Controller Gate Array; also Multi-Color Graphics Array):** a degraded form of VGA used with IBM's lesser PS/2 models.

**VESA (Video Electronics Standards Association):** an emerging cross-platform video standard.

wider *color gamut,* or range of colors, than others can. Others are more accurate in maintaining their color balance through a wide range of brightness levels.

We determined the range of primary colors each monitor could display and compared the results with the *CIE chromaticity chart.* (CIE stands for Commission Internationale d'Eclairage, which, in 1931, created a now widely accepted method for describing colors.) The Trinitron-based monitors — the Fora Addonics Mon-7C8A, Mag Innovision MX14S, Sony CPD-1304, and Taxan MultiVision 795 — had the widest color repertoire, taking all four top positions. But the difference between the best Trinitron and the best shadow-mask tube amounted to only about 5 percent — not a noticeable difference to any but the most discriminating viewer.

In order to represent colors accurately, the three video amplifiers (one for each primary color) in each monitor must match one another. If one amplifier is stronger than another, one color will overpower the others and tinge the whole image. This consistency among amplifiers is termed *color tracking.* A perfect monitor would exhibit 100-percent correctness, but most people do not detect defects down to about 90 percent. Only the Princeton Ultra 1400 scored well below this level. The problem was obvious on its screen, whose overall greenish tint could be reduced but not eliminated by adjustment of the control settings.

### You're in Control

The consistently high image and color quality of these autosyncs makes choosing among them tough. In fact, the biggest differences are in features rather than in performance. Autosyncs require ready access to their controls: Plug the monitor in to a different computer, and you may have to adjust the image size and position to get the best display. You want these controls up front or on the side of the monitor — not at the back, where you need long arms, a mirror, and quite a bit of luck in order to set them properly.

## On the Horizon

Monitor makers are constantly upgrading their products to reflect rapid advances in display technology and rising expectations of users. In fact, some of the monitors we looked at for this report may have been replaced by new models by the time you read this.

Sony is introducing a new version of the CPD-1304, the CPD-1304S. On the outside, you'll see little difference: The cases, controls, and Trinitron screens of the two products are identical. But inside, the bandwidth of the monitor's electronics is now 60 megahertz instead of 45 megahertz, the maximum horizontal-scan rate is now 57 kilohertz instead of 50 kilohertz, and the maximum vertical-scan rate is now 110 hertz instead of 87 hertz. These improvements plus the addition of antistatic, antiglare coating add nothing to the price: The CPD-1304S lists for $1,000. Sony, 655 River Oaks Parkway, San Jose, CA 95134; 800-352-7669 or 408-432-0190.

Nanao USA has unveiled a new monitor model, the FlexScan 9065S. The 9065S uses a 14-inch shadow-mask tube that has antiglare and antistatic features. With a 40-megahertz video bandwidth, the 9065S accepts horizontal frequencies of 30 to 49 kilohertz and vertical frequencies of 50 to 90 hertz, easily handling normal Mac II-series outputs.

By using a technology called interference reduction, Nanao claims that FlexScan 9065S monitors can be placed as close as 6 inches apart without causing problems on-screen. Normally configured for PCs, the $899 monitor can plug in to a Mac II with Nanao's optional MD-C24 cable ($25). Nanao USA Corp., 23535 Telo Avenue, Torrance, CA 90505; 213-325-5202.

Samsung Electronics America has introduced a new 14-inch shadow-mask monitor, the SyncMaster 3n. Targeted at the business-graphics market, this $599 autosync includes antiglare treatment, front-panel controls, and a swivel-base stand. Samsung Electronics America, 301 Mayhill Street, Saddle Brook, NJ 07662; 201-587-9600.

Besides the expected brightness and contrast controls, you want at least four others — horizontal position (occasionally termed *phase*), vertical position, horizontal size (width), and vertical size (sometimes called height). All but two of the autosyncs we tested had all these basic controls; neither the Amdek AM/738+ nor the Relisys RE-1422 offered a vertical-position control. The controls should provide enough range to make the image fill the screen and to center the image properly. When we connected each of the 14 autosyncs to a Mac IIci, each exhibited sufficient control range and was able to generate an image measuring at least 13 inches diagonally.

Unless you work in a fairly dark environment, you should investigate a monitor with some kind of antiglare treatment. Although they produce a slight reduction in sharpness, antiglare treatments cut down the reflections that can make an on-screen image difficult to see. Several glare-reducing treatments are popular, and each has its advocates. Among the autosyncs we tested, only the Mag Innovision MX14S and the NEC MultiSync 4FG had no antiglare treatment — but neither does the popular AppleColor. NEC does offer an optional ($79) Monitor Lens; it provides OCLI glare protection, which *MacUser* judges to be the best. There are also numerous low-cost third-party glare solutions offered by companies such as Kensington (San Mateo, California) and image-enhancement filters such as PC Soft Lens, made by Ergotech (Corona, California).

Autosyncs are versatile, but to gain that versatility, you must step outside the familiar plug-and-play world of the Mac and be prepared to wrestle with unfamiliar cables and controls. An autosync monitor is like an off-the-rack suit — you need to make a few adjustments here and there to get the best fit, but the end result can be completely serviceable, even stylish, at a price that makes up for the loss of designer mystique.

**Winn L. Rosch offers even more computer views in *The Winn Rosch Hardware Bible.***

## The Bottom Line

Autosynchronous monitors — autosyncs, for short — are not the poor relations of the Macintosh-display family anymore. Versatile and affordable, they have good to excellent quality and can work not only with your Macintosh but also with practically any IBM PC or compatible available.

You'll have a hard time making a bad choice among the autosyncs we tested. The differences are subtle, and choosing is mostly a matter of picking the subtlety that's most important to you.

If you're looking for the sharpest display, the **NEC MultiSync 4FG** ($949 list, $800 street) should be your top choice. Its relatively low color temperature produces whites that appear whiter to most users, and its powerful and versatile controls make switching from a Mac to a PC a snap as well as allowing for easy color adjustments.

If you want a wide range of bright colors, investigate the entire group of Trinitron-based monitors — they have a 10-percent-larger range of hues than any of the shadow-mask monitors do, and they delivered more-consistent screen illumination, scoring highest in our uniformity tests. Our overall color-quality favorites are the **Fora Addonics Mon-7C8A** ($694 list, $575 street) and the **Sony CPD-1304** ($1,000 list, $445 street).

For brightly lit office environments, the **Taxan MultiVision 795** ($1,095 list, $600 street) is your best choice, delivering the most brilliant image of all (54.8 footlamberts) with little loss in apparent image quality.

For critical comparisons of scanned images, the near-perfect gray linearity of the **Nissei Sangyo Hitachi 15 MVX** ($795 list, $625 street) enables you to see all the subtle variations in grays and colors. This autosynchronous monitor also has the least pincushion distortion, which means that straight lines remain straight.

**Versatile, affordable video options for your Mac viewing needs: clockwise from left, the NEC MultiSync 4FG, Sony CPD-1304, and Taxan MultiVision 795; not shown, the Fora Addonics Mon-7C8A and the Nissei Sangyo Hitachi 15 MVX.**

## Table 2 Criteria

**List price** — The monitor's retail price.

**Street price** — The monitor's average price through dealers surveyed across the U.S. in April 1992 or through mail order.

**Tube type** — Whether the tube uses a shadow mask or a Sony Trinitron aperture grille.

**Screen size (diagonal)** — The distance from one corner to the opposite corner on the exposed glass face of the monitor, in inches.

**Active screen size (diagonal)** — The length, diagonally, of the portion of the screen that lights up, in inches.

**Max. pixel dimensions (W x H)** — The maximum number of dots (pixels) that can be displayed on the screen, counting horizontally (width) and vertically (height).

**Horizontal-scan rate (min., max.)** — The minimum and maximum number of lines of pixels per second that can be written on the screen, in kilohertz.

**Vertical-scan rate (min., max.)** — The minimum and maximum rate at which the screen can be redrawn from top to bottom, in cycles per second (hertz).

**Power consumption** — The maximum electrical-power requirements of the monitor, in watts.

**Swivel stand attached** — Does the monitor ship with a swivel stand attached?

**Antiglare treatment** — The type of coating or transparent panel on the monitor's screen, designed to eliminate or diffuse reflected light.

**Controls** — Does the monitor have controls for brightness, contrast, the position and the size of the image, pincushioning, degaussing, and voltage? If yes, the type (analog or digital) and the location of the control.

**Signal compatibility** — The video standards each monitor can handle.

**Input connectors** — The type of video port(s) on the back of the monitor.

**Case dimensions (L x W x H)** — The outside length, width, and height of the monitor's plastic shell, in inches.

**Footprint (L x W)** — The area the monitor stand occupies on top of your desk, in inches.

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CIRCLE 120 ON READER SERVICE CARD.

## Table 2: Features of Autosynchronous Monitors

| ● = yes<br>○ = no | Amdek<br>AM/738+<br>🐭🐭🐭½ | Darius<br>TSM1431<br>🐭🐭🐭🐭 | Fora Addonics<br>Mon-7C8A<br>🐭🐭🐭🐭½ | Mag Innovision<br>MX14S<br>🐭🐭🐭🐭 | Mitsubishi<br>Diamond Pro 14<br>🐭🐭🐭🐭 |
|---|---|---|---|---|---|
| **List price** | $599 | $599 | $694 | $799 | $839 |
| **Street price** | $460 | $340 | $575 | $739 | $675 |
| **Pros** | Inexpensive. Good documentation. | Lowest street price. | Good spatial uniformity and color range. | Good color range. | Low nuisance rating. Good documentation. |
| **Cons** | Poorest convergence and pincushion scores. | Documentation doesn't mention Mac. | Documentation doesn't mention Mac. | Little mention of Mac in documentation. | Pincushioning control not very intuitive. |
| **Specifications** | | | | | |
| Tube type | shadow mask | shadow mask | Trinitron | Trinitron | shadow mask |
| Screen size (diagonal) | 13 in. (14 in. claimed) | 13.25 in. | 13.25 in. | 13.07 in. | 13.25 in. |
| Active screen size (diagonal) | 11.8 in. | 11.5 in. | 11.75 in. | 12 in. | 12.75 in. |
| Max. pixel dimensions (W x H) | 1,024 x 768 pixels | 800 x 600 pixels | 1,024 x 768 pixels | 1,280 x 1,024 pixels | 1,024 x 768 pixels |
| Horizontal-scan rate (min., max.) | 31.5, 38 kHz | 15.75, 39 kHz | 30, 57 kHz | 30, 64 kHz | 30, 58 kHz |
| Vertical-scan rate (min., max.) | 50, 90 Hz | 50, 90 Hz | 45, 90 Hz | 50, 120 Hz | 50, 90 Hz |
| Power consumption | 86 watts | 80 watts | 90 watts | 110 watts | 100 watts |
| Swivel stand attached | yes | no | no* | no | yes |
| Antiglare treatment | silica, tinted glass | etched | tinted glass | none | etched, tinted glass |
| **Controls** | | | | | |
| Brightness/contrast | analog, right | analog, left | analog, front | analog, front | analog, front |
| Horizontal position | analog, back | analog, back | analog, front | digital, front | digital, left |
| Vertical position | no | analog, back | analog, front | digital, front | digital, left |
| Horizontal size | analog, back | analog, back | analog, front | digital, front | digital, left |
| Vertical size | analog, back | analog, back | analog, front | digital, front | digital, left |
| Pincushioning | no | no | no | no | digital, front |
| Degaussing | no | no | no | auto | auto |
| Input select | no | analog, back | no | auto | no |
| 120/240-volt switch | auto | no | yes† | auto | no |
| **Signal compatibility** | | | | | |
| 1,024 x 768 noninterlaced (75 Hz) | ○ | ○ | ● | ● | ● |
| 1,024 x 768 noninterlaced (60 Hz) | ○ | ○ | ● | ● | ● |
| 1,024 x 768 interlaced (60 Hz) | ● | ● | ● | ● | ● |
| STD 1,280 x 1,024 | ○ | ○ | ○ | ● | ○ |
| MCGA, VGA (all), and SuperVGA | ● | ● | ● | ● | ● |
| Mac II | ● | ● | ● | ● | ● |
| Mac LC | ● | ○ | ○ | ● | ● |
| **Other** | | | | | |
| Mac II cable | included | free on request | included, with adapter | $25 option | $35 option |
| Input connectors | 15-pin mini | 9-pin mini, Digital/TTL | 15-pin mini | 15-pin mini | 15-pin mini |
| Case dimensions (L x W x H) | 14.5 x 14.1 x 13.3 in. | 15.5 x 13.75 x 14 in. | 16.1 x 14.2 x 13.5 in. | 16.25 x 14 x 14 in. | 15.5 x 13.75 x 13.75 in. |
| Footprint (L x W) | 9.5 x 9.5 in. | 11 x 9.25 in. | 8.75 x 8.75 in. | 9 x 9 in. | 9 x 9 in. |
| Weight | 30 lb | 32.6 lb | 28.9 lb | 35.2 lb | 26.5 lb |
| **Company** | Amdek<br>3471 N. First St.<br>San Jose, CA 95134<br>800-722-6335<br>408-473-2013 | Darius Technology, Inc.<br>22028 26th Ave. S.E.<br>Bothell, WA 98021<br>206-483-8889 | Fora, Inc.<br>30 W. Montague Expy.<br>San Jose, CA 95134<br>408-944-0393 | Mag Innovision<br>4392 Corporate Center Dr.<br>Los Alamitos, CA 90720<br>714-827-3998 | Mitsubishi<br>5665 Plaza Dr.<br>Cypress, CA 90630<br>800-843-2515<br>310-822-4669 |

*The manufacturer claims that the swivel stand is attached, but this wasn't the case with our test monitor.

†The manual doesn't explain how this switch works; it's not intuitive.

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|---|---|---|---|---|
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| 24-bit color | Futura SX<br>**$599** | PrecisionColor 24Xp<br>$599 | Paintboard Li<br>$999 | SuperMac 8•24 PDQ<br>$999 |
| 8-bit color with Ethernet networking built-in | ColorLink DC/T<br>**$639** | None | None | None |
| 24-bit color with Ethernet networking built-in | ColorLink SX/T<br>**$789** | None | None | None |

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CIRCLE 151 ON READER SERVICE CARD.

## Table 2: Features of Autosynchronous Monitors, continued

| ● = yes<br>○ = no | NEC<br>MultiSync 4FG<br>🐭🐭🐭🐭🐭 | Nissei Sangyo<br>Hitachi 15 MVX<br>🐭🐭🐭🐭½ | Panasonic<br>PanaSync C1395<br>🐭🐭🐭½ | Princeton<br>Ultra 1400<br>🐭🐭🐭 | Relisys<br>RE-1422<br>🐭🐭🐭🐭 |
|---|---|---|---|---|---|
| **List price** | $949 | $795 | $899 | $899 | $745 |
| **Street price** | $800 | $625 | $445 | $479 | $380 |
| **Pros** | Good color tracking. Good documentation. | Good objective geometry. | Good color tracking. Good documentation. | Good documentation. | Good street price. |
| **Cons** | Expensive. | Little mention of Mac in documentation. | Expensive. | Poor color tracking. Expensive. | Documentation doesn't mention Mac. |
| **Specifications** | | | | | |
| Tube type | shadow mask | shadow mask | shadow mask | shadow mask | shadow mask |
| Screen size (diagonal) | 13.75 in. (15 in. claimed) | 13.75 in. (15 in. claimed) | 13.5 in. | 13.25 in. | 13.25 in. |
| Active screen size (diagonal) | 12.75 in.§ | 12.5 in. (15 in. claimed) | 12.5 in. | 12.5 in. | 12 in. |
| Max. pixel dimensions (W x H) | 1,024 x 768 | 1,024 x 768 | 1,024 x 768 | 1,024 x 768 | 1,024 x 768 |
| Horizontal-scan rate (min., max.) | 27, 57 kHz | 30, 58 kHz | 30, 57 kHz | 15, 36.5 kHz | 28, 50 kHz |
| Vertical-scan rate (min., max.) | 55, 90 Hz | 50, 100 Hz | 50, 90 Hz | 45, 120 Hz | 47, 89 Hz |
| Power consumption | 105 watts | 100 watts | 110 watts | 85 watts | 90 watts |
| Swivel stand attached | yes | yes | yes | yes | yes |
| Antiglare treatment | OCLI option, $79 | antistatic, silica | etched, tinted glass | etched | tinted glass |
| **Controls** | | | | | |
| Brightness/contrast | analog, front | analog, front | analog, front | analog, front | analog, front |
| Horizontal position | digital, front | analog, front | analog, front | analog, front | analog, front |
| Vertical position | digital, front | analog, front | analog, front | analog, front | no |
| Horizontal size | digital, front | analog, front | analog, front | analog, front | analog, front |
| Vertical size | digital, front | analog, front | analog, front | analog, front | analog, front |
| Pincushioning | digital, front | no | no | no | no |
| Degaussing | yes, front | no | no | no | no |
| Input select | analog, front | no | no | analog, front | no |
| 120/240-volt switch | no | no | no | yes | internal |
| **Signal compatibility** | | | | | |
| 1,024 x 768 noninterlaced (75 Hz) | ○ | ● | ○ | ● | ● |
| 1,024 x 768 noninterlaced (60 Hz) | ● | ● | ● | ● | ● |
| 1,024 x 768 interlaced (60 Hz) | ● | ● | ● | ● | ● |
| STD 1,280 x 1,024 | ○ | ○ | ○ | ○ | ○ |
| MCGA, VGA (all), and SuperVGA | ● | ● | ● | ● | ● |
| Mac II | ● | ● | ● | ● | ● |
| Mac LC | ● | ● | ● | ● | ● |
| **Other** | | | | | |
| Mac II cable | free on request | included | $40 option | $13 option | free on request |
| Input connectors | physically attached | 15-pin mini | physically attached | 15-pin mini | 15-pin mini |
| Case dimensions (L x W x H) | 16.29 x 14.64 x 15.59 in. | 16.5 x 14 x 14.75 in. | 14.8 x 14 x 14.5 in. | 15.25 x 14 x 14.75 in. | 15 x 14.25 x 14.5 in. |
| Footprint (L x W) | 10.25 in. diameter | 10 x 10.75 in. | 9.2 x 9.5 in. | 9.75 x 10.5 in. | 9.75 x 10.25 in. |
| Weight | 39.2 lb | 36.7 lb | 27.5 lb | 35 lb | 25 lb |
| **Company** | NEC<br>1255 Michael Dr.<br>Wood Dale, IL 60191<br>708-860-9500 | Nissei Sangyo America<br>800 South St.<br>Waltham, MA 02154<br>617-893-5700 | Panasonic<br>2 Panasonic Way<br>Secaucus, NJ 07094<br>800-742-8086<br>212-887-8659 | Princeton Graphics<br>1125 N. Meadow Pk.<br>#406<br>Roswell, GA 30076<br>404-644-1010 | Relisys<br>320 S. Milpitas Blvd.<br>Milpitas, CA 95035<br>408-945-9000 |

§The factory setting is 12.75 inches, and it can be adjusted to 13.75 inches; the manufacturer claims 14 inches.

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| Monitor Type | Color | | | | Gray Scale | | Monochrome | | |
|---|---|---|---|---|---|---|---|---|---|
| Macintosh Computer Type | 19"-21" | 16"-17" | Apple 13" | VGA | 19"-21" | 15" Portrait | 19"-21" | 15" Portrait | Apple 12" |
| Classic & Plus (in black & white) | | | ◆ | ◆ | | ◆ | ■ | ◆ | ◆ |
| SE (in black & white) | | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ |
| LC & LCII | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ |
| SE/30 & IIsi | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ |
| Quadras and II-family | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ |
| PowerBooks & Classic II | | ■ | ■ | ■ | | ■ | ■ | ■ | ■ |

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CIRCLE 124 ON READER SERVICE CARD.

## Table 2: Features of Autosynchronous Monitors, continued

| ● = yes<br>○ = no | Sampo AlphaScan Plus KDM 1466A<br>🐭🐭🐭🐭 | Samtron SC428V<br>🐭🐭🐭🐭 | Sony CPD-1304<br>🐭🐭🐭🐭½ | Taxan MultiVision 795<br>🐭🐭🐭🐭½ |
|---|---|---|---|---|
| **List price** | $849 | $549 | $1,000 | $1,095 |
| **Street price** | $590 | $450 | $445 | $600 |
| **Pros** | Good subjective geometry. | Lowest list price. | Greatest color range. | Brightest monitor. Good color range. |
| **Cons** | Poor subjective color quality. Documentation doesn't mention Mac. | Documentation doesn't mention Mac. | Documentation doesn't mention Mac. | Highest list price. Documentation doesn't mention Mac. |
| **Specifications** | | | | |
| Tube type | shadow mask | shadow mask | Trinitron | Trinitron |
| Screen size (diagonal) | 13 in. | 13 in. (14 in. claimed) | 13 in. (14 in. claimed) | 13.5 in. |
| Active screen size (diagonal) | 12.25 in. | 12 in. (13 in. claimed) | 13 in. | 12 in. |
| Max. pixel dimensions (W x H) | 1,024 x 768 pixels | 1,024 x 768 pixels | 1,024 x 768 pixels | 1,024 x 768 pixels |
| Horizontal-scan rate (min., max.) | 30, 60 kHz | 31.5, 35.5 kHz | 28, 50 kHz | 30, 57 kHz |
| Vertical-scan rate (min., max.) | 50, 90 Hz | 50, 90 Hz | 50, 87 Hz | 50, 100 Hz |
| Power consumption | 110 watts | 70 watts | 100 watts | 100 watts |
| Swivel stand attached | yes (detachable) | yes | yes | yes |
| Antiglare treatment | silica | etched, tinted glass | silica | silica |
| **Controls** | | | | |
| Brightness/contrast | analog, front | analog, front | analog, front | analog, front |
| Horizontal position | analog, front | analog, back | analog, left | analog, front |
| Vertical position | analog, front | analog, back | analog, left | analog, front |
| Horizontal size | analog, front | analog, back | analog, left | analog, front |
| Vertical size | analog, front | analog, back | analog, left | analog, front |
| Pincushioning | no | no | no | no |
| Degaussing | no | no | auto | no |
| Input select | no | no | analog, left | analog, front |
| 120/240-volt switch | no | auto | no | auto |
| **Signal compatibility** | | | | |
| 1,024 x 768 noninterlaced (75 Hz) | ● | ○ | ○ | ● |
| 1,024 x 768 noninterlaced (60 Hz) | ● | ○ | ● | ● |
| 1,024 x 768 interlaced (60 Hz) | ● | ● | ● | ● |
| STD 1,280 x 1,024 | ○ | ○ | ○ | ○ |
| MCGA, VGA (all), and SuperVGA | ● | ● | ● | ● |
| Mac II | ● | ● | ● | ● |
| Mac LC | ● | ● | ● | ● |
| **Other** | | | | |
| Mac II cable | included | included | $20 option | included |
| Input connectors | physically attached | physically attached | 9-pin, RGB D-sub | 15-pin mini |
| Case dimensions (L x W x H) | 14.75 x 14 x 15 in. | 14.5 x 14 x 14.5 in. | 16.2 x 13.7 x 13.9 in. | 16 x 13.75 x 13.75 in. |
| Footprint (L x W) | 9 x 9 in. | 10 x 10 in. | 9.25 x 9.25 in. | 9.34 x 9.25 in. |
| Weight | 27.6 lb | 26.7 lb | 28.6 lb | 28.6 lb |
| **Company** | Sampo America<br>5550 Peachtree Industrial Blvd.<br>Norcross, GA 30071<br>404-449-6220 | Samtron Diplays, Inc.<br>14251 E. Firestone Blvd. Ste. 101<br>La Mirada, CA 90638<br>310-802-8425 | Sony<br>655 River Oaks Pkwy.<br>San Jose, CA 95134<br>800-352-7669<br>408-432-0190 | Taxan America, Inc.<br>161 Nortech Pkwy.<br>San Jose, CA 95134<br>408-946-3400 |

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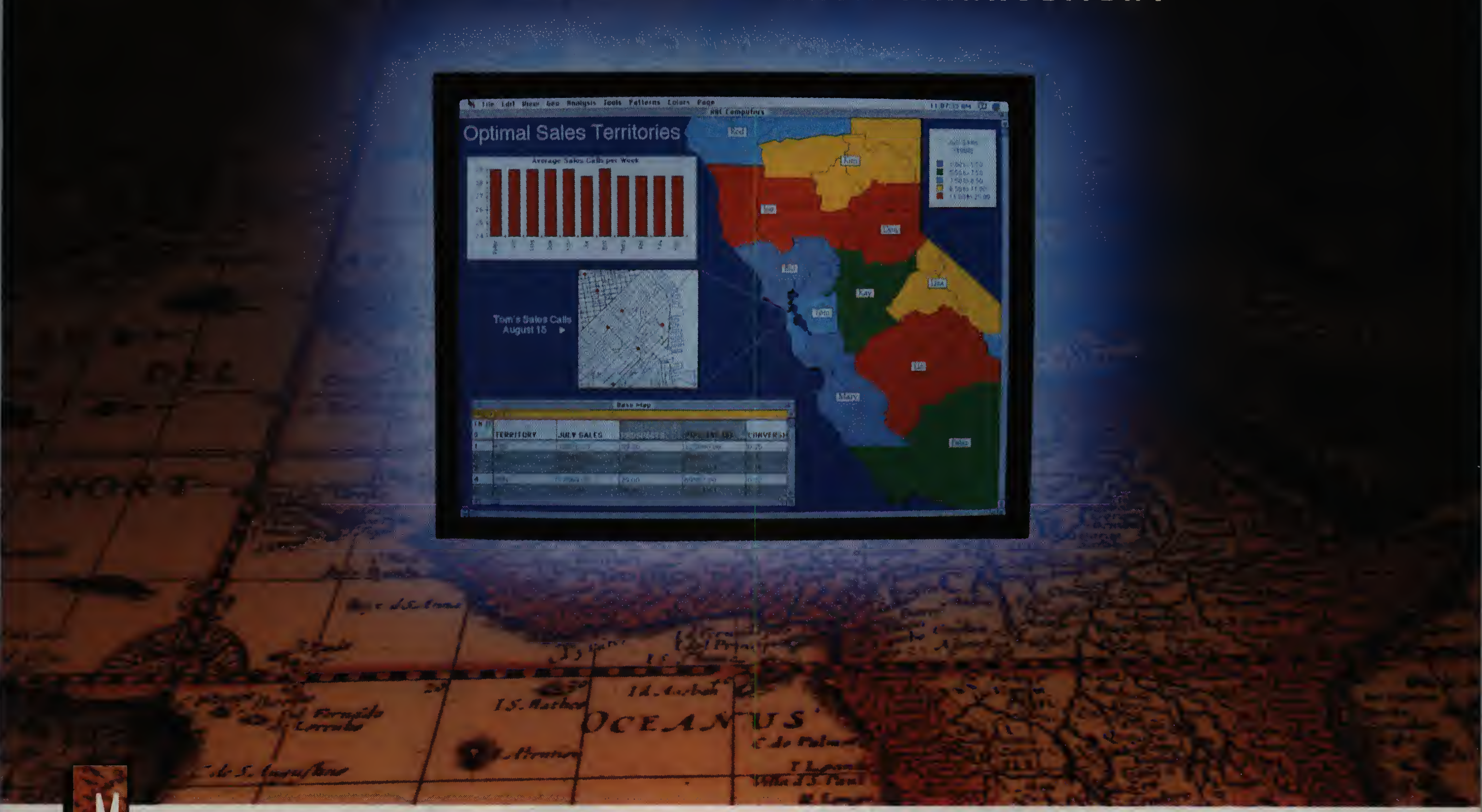

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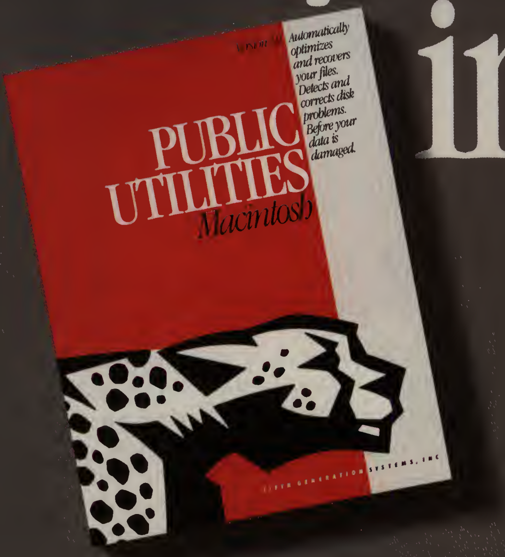
CIRCLE 187 ON READER SERVICE CARD.

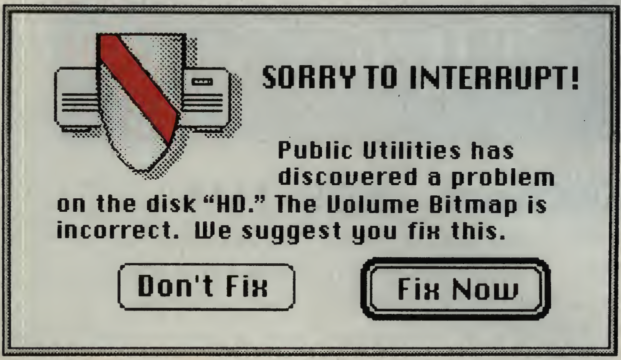
Now you can get out of trouble before you get into it.


Automatically optimizes and recovers your files. Detects and corrects disk problems. Before your data is damaged.
PUBLIC UTILITIES
Macintosh
FIFTH GENERATION SYSTEMS, INC

CIRCLE 102 ON READER SERVICE CARD.

Owning most utility software packages is like belonging to the Auto Club.

If your system crashes, or if you have an accident with your data, they can come to your rescue.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Public Utilities has discovered a problem on the disk "HD." The Volume Bitmap is incorrect. We suggest you fix this.

But before you get back up and running, you have to spend a lot of time waiting by the side of the road.

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Instead of getting you back up and running, Public Utilities concentrates on *keeping* you up and running.

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But if you *are* an MIS type, you'll be delighted to know that, in addition to protecting your people from disaster, Public Utilities reminds them to do prudent things like perform regular backups, update their passwords and optimize their hard disks.

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Of course, even Public Utilities can't prevent people from deleting their files or reformatting their hard disks.

But it can bail them out of more difficult situations than any other utility software.

And unlike other programs, it won't *let* them get into difficult situations.

That's because we left out Sector Editors and other such high end, high risk things. And put in plenty of on-line HELP.

Naturally, we made it System 7 savvy, so you can utilize such helpful features as virtual memory and Apple Events.

There's more. So pick up the phone. Call 1-800-666-2904. We'll tell you about our vaunted 24-hour toll-free customer support.

Which is what you use to get out of trouble *after* you get into it.

**Repair Disk**

*To get you back up and running promptly, Public Utilities offers the most complete after-the-fact diagnosis and repair.*

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**Undelete File**

*Accidentally delete a file or reformat your hard disk? Not to worry. Public Utilities can help you recover.*

**Repair File**

*When Finder can't find it, or your word processor can't read it, your best shot at salvaging that valuable file is Public Utilities.*

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**FIFTH GENERATION SYSTEMS, INC**

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MacUser
April 1990

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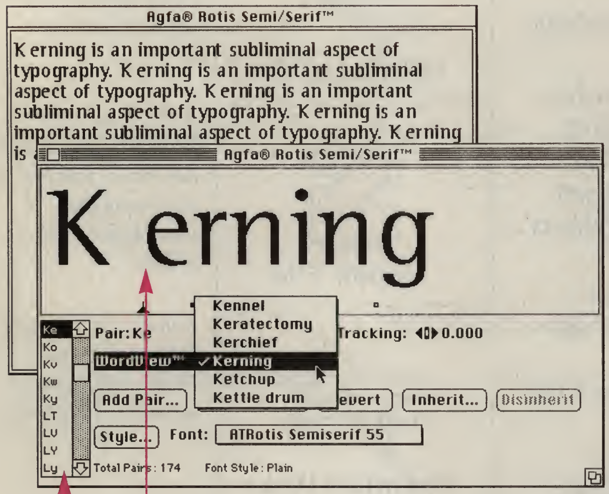

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Kerning is an important subliminal aspect of typography. Kerning is an important subliminal aspect of typography. Kerning is an important subliminal aspect of typography. Kerning is an important subliminal aspect of typography. Kerning is

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Pair: Ke

Tracking: 0.000

Font: ATRotis Semiserif 55

Total Pairs: 174

Font Style: Plain

The interactive window lets you easily move letters to the perfectly kerned position. You can add words to the kerning dictionary to preview kerning adjustments in context.

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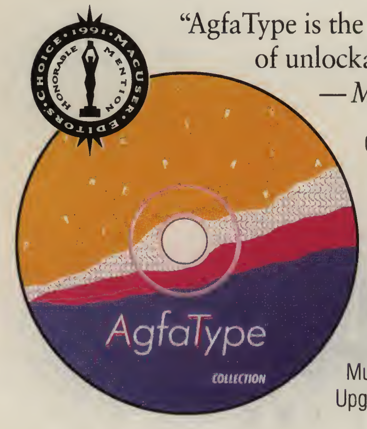

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MacUser
Dec. 1991

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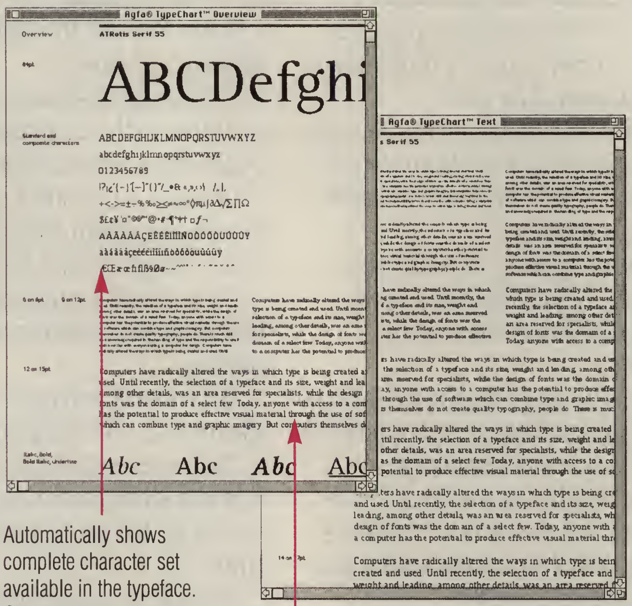

Agfa® TypeChart™ Overview
Overview
ATRotis Serif 55
84pt
ABCDefghi
Standard and composite characters
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789
6 on 8pt
9 on 12pt
12 on 15pt
Italic, Bold, Bold Italic, Underline
Abc
Abc
Abc
Abc
Agfa® TypeChart™ Text
14 on 17pt

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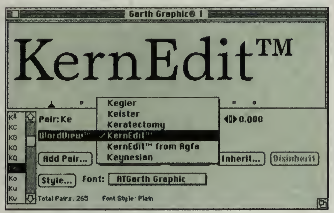
**By Aileen Abernathy**

ATEX Renaissance

**Designer pages:** Atex believes that the major competition for its new page-design program, Renaissance, is Illustrator and FreeHand, not QuarkXPress and PageMaker. Renaissance ($895) offers a novel combination of page-layout and drawing tools along with a point-and-click interface that minimizes trips to the menus. It supports multiple page sizes in a single document, and you can visually resize display text and rule widths simply by dragging their handles. (Why can't **the DTP gorillas** do this stuff?) An eyedropper tool lets you fill display type with graphics or create custom color palettes. Other cool features: customizable dummy text, automatic drop caps, text on a curve, two-color blends, masking of graphics, stand-alone libraries, and robust output capabilities. Alas, the initial release of Renaissance has a few glaring weaknesses. Text can be imported only in ASCII format, for example. Still, many designers may find it just the ticket for brochures, display ads, and magazine covers. 508-670-3430.



Pair: Ke

0.000

Font: ATGarth Graphic

Total Pairs: 265

Font Style: Plain

**One good kern deserves another:** Agfa has broadened its suite of end-user type products with three utilities raided from Canadian companies. KernEdit, considered by many to be **the best kerning editor,** and KernData were plucked from Pairs Software. KernEdit 2.0 ($149) lets you alter the kerning data for PostScript and TrueType fonts, and it sports a preview window. KernData supplies pre-defined kerned pairs for more than 400 Adobe fonts, in 25 packages ($95 each). TypeChart ($99), acquired from Octavo Productions, creates handsome **type-specimen sheets** for your fonts. 508-658-5600. ♣ EDCO Services has released LetrTuck Professional, a $499 package that combines a kerning editor with 200 kerning sets for the most-popular PostScript fonts. Extra packages of 200 kerning sets are $400 each. 813-962-7800.

**Art on call:** One World Interactives is readying The Virtual Portfolio, a CD-ROM showcase of the graphics and animation work of 250 Mac artists such as Kathy Kifer (below). The 400-megabyte disc will be sent free to 10,000 prospective buyers. 503-683-4020. ♣ Mirror Technologies and 3M are preparing CD Stock, a stock-photo research tool. This release presents the libraries of four major **stock-photo agencies** (5,000 images each). The agencies retain all copyrights, and you pay a royalty for image use, which also nets you a high-quality transparency. CD Stock costs $995 bundled with a Mirror CD-ROM drive or $650 for the discs alone. 612-633-4450.

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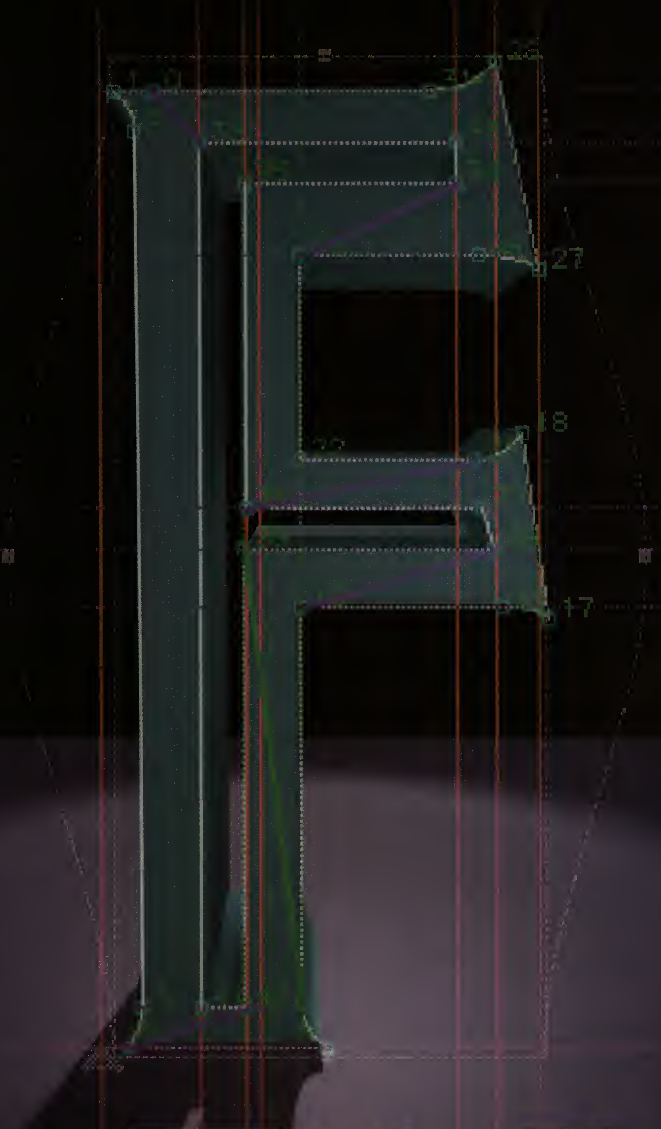

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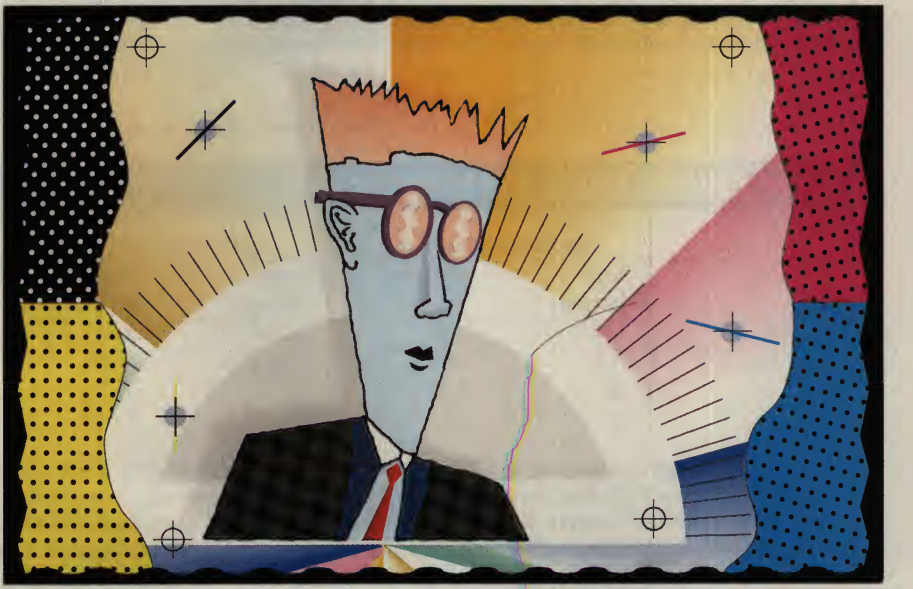
CIRCLE 190 ON READER SERVICE CARD.

# All the Right Angles

*High-quality color separations are now possible from the desktop, thanks to new technologies that minimize moiré problems.*

**By Bruce Fraser**



If you do color separations from the desktop, chances are you've seen printed images that appear to be covered with lace doilies. These distracting interference patterns, called moiré, are caused by the superimposition of the four halftone screens — cyan, magenta, yellow, and black — used to reproduce full-color images. Some moiré is inevitable in four-color printing; the goal is to render it imperceptible.

In traditional color separations, the four halftones are created photographically with filters and mesh screens. This technique produces halftones at precise rotation angles, resulting in the minimum possible moiré. These angles — cyan at 15 degrees, magenta at 75 degrees, yellow at 90 degrees, and black at 45 degrees — are called the *traditional angle set.*

The advent of digital prepress presented a new problem. Conventional halftones are composed of variably sized, regularly spaced dots, but digital devices such as PostScript imagesetters have a fixed grid of same-sized dots, like holes in a pegboard. To simulate halftones, an imagesetter must group its *laser spots* into larger units called *cells.* Each cell corresponds to a single conventional halftone dot. By varying the number of laser spots that are printed within a cell, the imagesetter simulates the varying dot sizes of halftones. (For a complete explanation of traditional versus digital halftones, screen angles, the four-color process, and the causes of moiré, see "That's a Moiré," July '92, page 173.)

But the most serious limitation of digital devices appears when you rotate a digital halftone. Imagesetters can print a given laser spot or leave it blank, but they can't print a portion of a laser spot or a spot that doesn't fall on the grid. When you rotate a halftone cell, its corners must intersect the grid at the "corners" of spots. If the corners line up, then all the spots within the cell will also fall on the grid.

This constraint drastically reduces the number of rotation angles. The actual angles available depend on the screen frequency (number of cells per inch) and the imagesetter's resolution. Imagesetters can easily obtain the 45-degree and 90-degree angles used for the black and yellow screens, because the underlying grid is square, but they can't readily achieve the 15-degree and 75-degree rotation angles normally used for the cyan and magenta screens. Imagesetters must therefore alter these angles to get printable ones. Even a slight angle shift can cause moiré, however, and this is the major reason that desktop color separations have suffered from moiré problems.

## Digital Dilemma

Prepress vendors have devoted substantial amounts of time and money to improving the quality of digital halftones. One solution to the moiré problem is a technology called Flamenco, marketed by The Color Group, of Richmond, California. Flamenco does away with rotated screens entirely. Instead, all four colors are printed at the same 45-degree angle, with each screen offset slightly from the others so that the dots don't print on top of one another. (If the dots are directly superimposed, the result is mud.)

The Flamenco technology was enthusiastically received by early adopters, but it proved extremely vulnerable to misregistration on printing presses, resulting in dramatic color shifts. Such coaligned screens are currently out of favor in the imagesetter arena, although they are commonplace on thermal-wax and inkjet printers, which have more precise registration and lower resolutions.

Today's imagesetter vendors use two fundamentally different approaches to solving the screen-angle problem: *rational-tangent screening* and *irrational-tangent screening.*

The terms *rational* and *irrational* are derived from the mathematics used in the algorithms. With an angle such as 45 or 90 degrees, the tangent of the angle between the halftone cell and the underlying imagesetter grid is rational. It can be expressed as a ratio of two whole numbers — that is, as the ratio between the number of spots horizontally and the number vertically. The cells fall exactly on the grid, are identically shaped, and have the

## Table 1: Halftone Angles and Frequencies

| | Traditional Screens | | RT Screening | | HQS Screening | |
|---|---|---|---|---|---|---|
| | Angle (degrees) | Frequency (lpi) | Angle (degrees) | Frequency (lpi) | Angle (degrees) | Frequency (lpi) |
| Cyan | 15 | 133 | 18.435 | 133.871 | 15.0037 | 138.142 |
| Magenta | 75 | 133 | 71.565 | 133.871 | 74.9963 | 138.142 |
| Yellow | 90 | 133 | 90 | 127 | 90 | 138.545 |
| Black | 45 | 133 | 45 | 119.737 | 45 | 138.158 |

**Table 1: If you output color separations with 133-lpi screens at 2,540 dpi on an imagesetter, you'll find that the imagesetter can't match the values of traditional halftone screens. Rational Tangent Screening produces screen angles and frequencies that are significantly different from the norm, which can cause moiré and color shifts. The new supercell algorithms, such as Linotype-Hell's HQS Screening, offer a closer approximation to the traditional angles for cyan and magenta, and the screen frequency is nearly identical for all four colors.**

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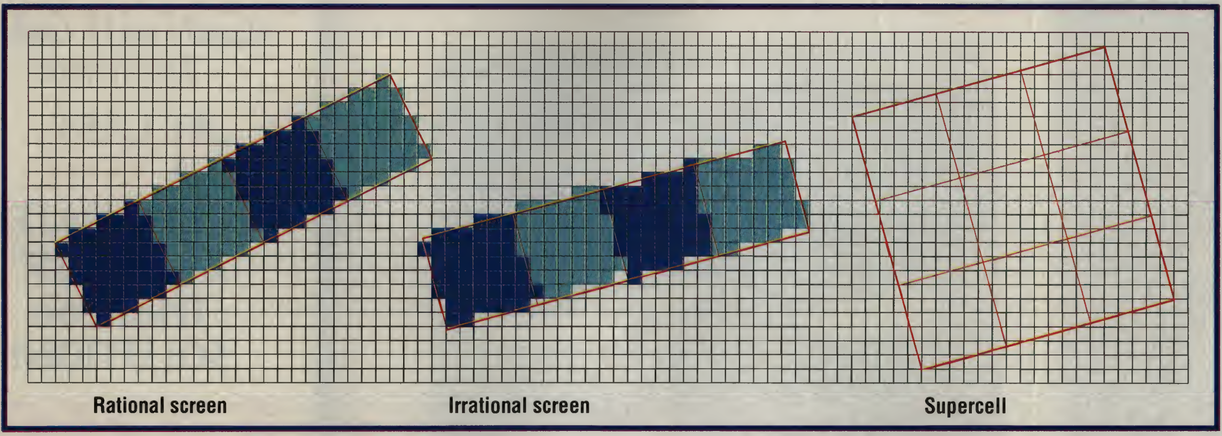

Figure 1: With rational screening, the corners of each halftone cell lie exactly on the underlying imagesetter grid and each halftone cell is identical, but the angles may vary significantly from the desired values. Irrational screening provides a closer approximation of the traditional angles; in this computation-intensive approach, the corners of the halftone cells don't lie on the grid and each cell is slightly different. Supercells are a compromise technology that combines the speed of rational screening with the accuracy of irrational screening. The corners of the supercell fall exactly on the imagesetter grid; the corners of its component cells don't.

same number of spots (see Figure 1). With an angle such as 15 or 75 degrees, the angle of the halftone cell doesn't intersect the imagesetter grid in a repeatable way, so the tangent is irrational — that is, it can't be calculated exactly and halftone cells vary in shape and number of spots.

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TEXAS INSTRUMENTS

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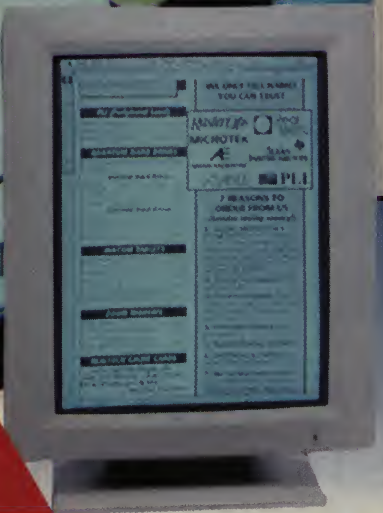

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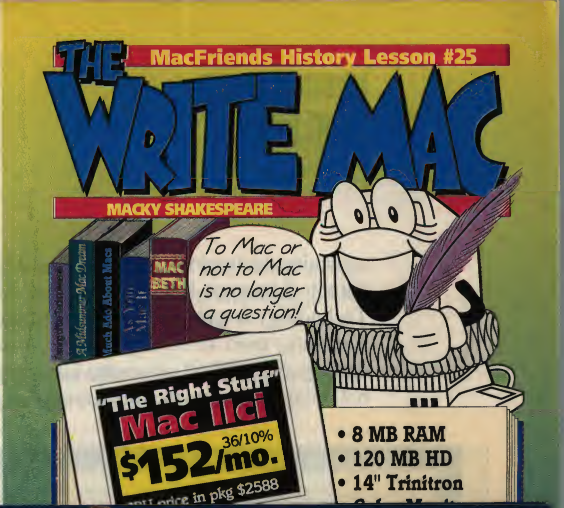
imagesetters. Irrational screening used to be available only on proprietary film-recorder systems, which cost upwards of $300,000. (A film recorder is basically a high-end imagesetter, with very high resolution and a very accurate film-transport mechanism.) Now, though, high-end vendors are providing irrational screening on midrange PostScript output devices.

One indication that irrational screen-

hardware, which takes the interpreted PostScript code produced by the RIP (raster-image processor) and substitutes its own screening functions for the standard PostScript screening routines. In some approaches, the interpreted PostScript is converted to a proprietary format before the algorithm is applied. (The RIP is the part of an imagesetter that interprets PostScript code and rasterizes it as a high-



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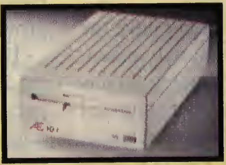

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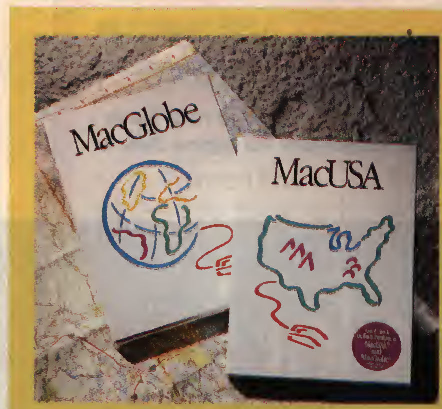

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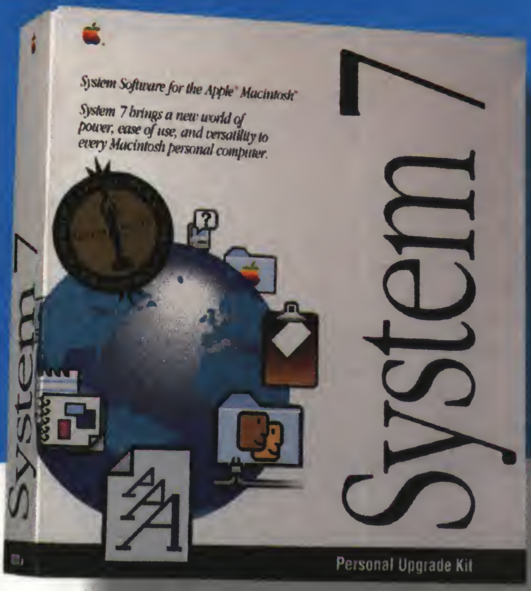
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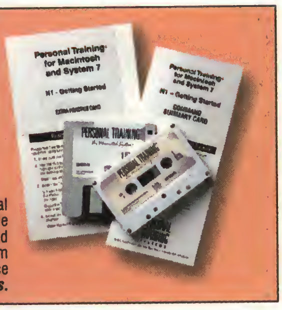
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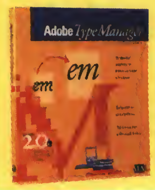

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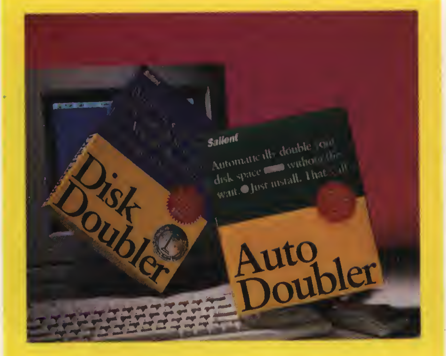
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| ❼COM0126 | Macintosh PC Exchange | 69. |
| Argosy | | |
| ❼COM0098 | Run PC/Network | 279. |
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| ❼NET0034 | Timbuktu/Remote® 3.0 | 129. |
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| **Casa Blanca Works, Inc.** | | |
| ❼UTI0273 | Drive 7 2.0 | 49. |
| **CE Software** | | |
| ❼UTI0048 | DiskTop 4.0 | 63. |
| ❼UTI0188 | Quickeys 2 v2.1 | 94. |
| ❼UTI0213 | Tiles | 69. |
| **Dantz** | | |
| ❼UTI0246 | Diskfit Pro | 74. |
| ❼UTI0227 | Retrospect 1.3 | 147. |
| ❼UTI0196 | Retrospect Remote | 264. |
| **Essential Software** | | |
| ❼UTI0292 | Easy Alarms 2.0 | 65. |
| ❼UTI0284 | Easy Alarms 2.0 10-user | 325. |
| **Insight Developement** | | |
| ❼UTI0098 | MacPrint 1.3 | 95. |
| **Insignia Solutions** | | |
| ❼UTI0174 | AccessPC | 60. |
| **Kent Marsh** | | |
| ❼UTI0212 | FolderBolt | 75. |
| **Salient** | | |
| ❼ | AutoDoubler or DiskDoubler 3.7 | ea.49. |
| **Symantec Corporation** | | |
| ❼UTI0151 | Norton Utilities for the Mac 2.0 | 95. |
| ❼UTI0214 | Symantec Antivirus for Mac 3.0 (SAM) | 65. |
| ❼LNG0051 | THINK C 5.0 | 199. |
| **Teknosys** | | |
| ❼UTI0251 | Help 1.02 | 89. |
| **UserLand Software, Inc.** | | |
| ❼UTI0272 | UserLand Frontier | 189. |

## WORD PROCESSING

| | | |
|---|---|---|
| **Caere** | | |
| ❼UTI0202 | OmniPage Professional | 649. |
| **Calera** | | |
| ❼UTI0215 | WordScan | 189. |
| **Claris** | | |
| ❼WRD0026 | MacWrite II 1.1 | 89. |
| **Microsoft** | | |
| ❼WRD0050 | Word 5.0 | 295. |
| ❼UPG0001 | Word 5.0 Upgrade | 125. |
| **Sensible Software** | | |
| ❼SPL0018 | Sensible Grammar 2.1 | 55. |
| **Softsync** | | |
| ❼WRD0057 | ExpertWriter | 29. |
| **TGS** | | |
| ❼LNG0053 | Prograph 2.5 Compiler Ver. | 309. |
| **T/Maker Co.** | | |
| ❼WRD0051 | WriteNow 3.0 | 159. |
| **WordPerfect** | | |
| ❼WRD0041 | WordPerfect 2.1 | 295. |
| **WordStar** | | |
| ❼SPL0030 | American Heritage Electronic Dictionary | 55. |
| ❼SPL0028 | Correct Grammar 3.0 | 49. |
| ❼WRD0053 | Correct Letters | 32. |
| ❼WRD0054 | Correct Quotes | 32. |
| ❼WRD0052 | Correct Writing | 39. |

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**$63**

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**Publisher**

CE SOFTWARE

## TouchBase 2.0 or DateBook

***TouchBase 2.0*** stores information about personal and business contacts. Automatically capitalizes words and formats phone numbers. It has fields for storing alternative phone numbers, and you can customize the fields. TouchBase prints envelopes and mailing labels, including postalbar codes, plus many other useful forms. **DAT0076 $79.**

***DateBook*** is the ultimate personal time manager for Macintosh. Instant access and advanced scheduling keeps you on top of your appointments and things to do. DateBook makes it easy to plan your life. It shows your schedule in multiple formats including test, Gantt chart and time bar. DateBook's views enable you to see your schedule in as much detail as you like as quickly as possible. **Publisher: After Hours Software BUS0222**

**$79ea.**

## In*touch* 1.1 or DocuComp II*

❼ **In*touch*** 1.1Rated "the best name-and-address DA for the Mac," MacUser Magazine, 4/91. In*touch* 1.1 is an easy-to-use Desk Accessory that stores unlimited names, addresses, and notes, prints envelopes and labels, dials phone numbers and more! Share your contact information with In*Touch* Network! ***Send in your registration card to Advanced Software for a FREE upgrade to version 2.0*** **UTI0192 $39.**

❼ **DocuComp II** now has dozens of new features and is now System 7 Savvy! Reporting changes is a breeze! Perfect for goverment, law, aerospace, or wherever documents change over time. Version Control has never been easier! Compares any two document versions, and reports changes as minor as an inserted comma, and as major as a complete rearrangement of text. Save or print a marked-up file, including a separate list of changes. **Publisher: Advanced Software DTP0081**

**$109**

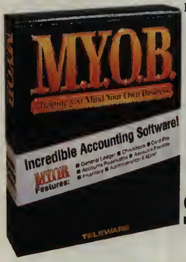
## Azimuth 2.1

Azimuth 2.1 draws perspective maps of any country in the world, all 50 states, and the Canadian provinces. It now includes the new independent states formed after the break up of the USSR. It imports text files to add detail to your maps, and plots true great circles. Azimuth uses data files to draw maps from any angle or distance, at any scale you desire. Use the drawing tools to customize the maps with symbols, graphics, layers, and rotatable text. Exports maps in EPS or PICT format. **Publisher: GraphSoft BUS0184**

**$299**

## M.Y.O.B. 3.0

❼ MacWorld World Class Award - 1991 and 1992. M.Y.O.B. is easy to understand and simple to use. Features include fully integrated General Ledger, A/P, A/R, Checkbook, Inventory, Card File and Administration. M.Y.O.B. offers on-screen analysis of balance sheet and P&L, job costing, To-Do List, fully customizable forms and reports. M.Y.O.B. is seamlessly integrated, fast and very powerful. Designed for the accounting and computer novice, it gives you the powerful features you need without the complications. ***Special $40 rebate offer if you purchase by August 30, 1992. Details in M.Y.O.B. box.*** System 7 Savvy. **Publisher: Teleware FIN0087**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**Publisher: Softsync EDU0346**

**$29ea.**

## OPTIMA™ 96

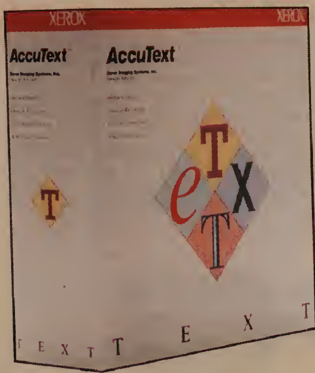
OPTIMA™ 96-Affordable V.32/9600 bps standalone modem. Also supports standard 2400, 1200 bps, and 300 bps communications plus V.42/V.42bis and MNP 5 error-control and data compression. V.42 bis boosts throughput for 38,400 bps performance on dial-up lines. And, free Smartcom for the Mac ($49 value) and Mac-to-modem cable are included. You don't have to know anything about the modem you're calling. OPTIMA 96 practically operates without you! Automatic Feature negotiation creates the most efficient combination of speed, error-control, and data compression whenever you use your OPTIMA modem. OPTIMA 96-More modem for your money. **Manufacturer: Hayes MOD0077**

**$399**

## MacPrint 1.3

❼ Use a Macintosh with non-Apple printers. Print Mac applications on HP Laserjet, Deskjet or compatible printers including all Series IIs, IIIs and the Deskjet 500. Prints text and graphics at the printer's maximum resolution. Does not require PostScript. Cable is included. **Publisher: Insight Development**
UTI0098

**$95**



## AccuText 3.0

❼ AccuText 3.0 is Intelligent Character Recognition (ICR) software that allows scanned documents to be recognized and captured to electronic files on the Macintosh, for output to word processing, spreadsheet and desktop publishing applications. Accutext now features an interactive Verifier. This feature increases speed and accuracy by inviting user interaction before processing. Accutext also features System 7 compatibility and support for the HP ScanJet IIc and Apple OneScanner, background processing, format retention, automatic halftone removal, on-screen zoning, support for ten languages, and compatibility with the most popular scanners and software applications for the Macintosh. **Publisher: Xerox Imaging Systems DTP0039**

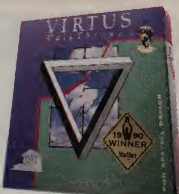
**$639**

## FontBank PostScript Display Typefaces

The FontBank PostScript Display typefaces give you a library of 250 type1 PostScript display typefaces. Build a versatile type library with designs ranging from the simple sans serif to the extreme ultra serif. Use them to create attention-getting headlines, sub-headings, titles, logos and special text effects. Included in the package are traditional, decorative, novelty, script, brush and calligraphic faces. Use these faces as a counterpoint to regular text or with design programs. With FontBank fonts, you get full-featured screen and printer fonts at an affordable price.
**Publisher: FontBank**
**FON0438**

**$95**

## Virtus WalkThrough 1.11

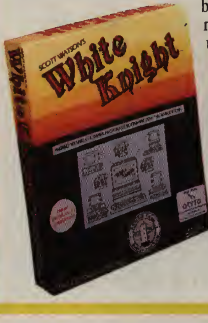


❼ The latest version of this award winning 3-D drawing program provides everything you need to quickly capture and explore your ideas in 3-D. Multiple windows and extensive drawing aids provide an interactive environment for editing and viewing your ideas. Interactive 3-D presentations, QuickTime® and PICS animated movies and perspective pictures dazzle your audiences. Enhanced Imports of 3-D DXF, PICT, Claris®CAD and MacDraw; and Exports of 3-D DXF, 2-D DXF, Claris®CAD, MacDraw, PICT and EPS. Winner of MacUser Breakthrough Product of the Year Award 1990.
**Publisher:**
**Virtus Corporation**
**GRA0278**

**$309**

## White Knight V.11

❼ The perfect low-cost solution to almost any Mac telecommunicator's needs. Offers the kind of power associated with products costing hundreds of dollars more, but is easier to learn and more flexible. 270+ page user manual is geared to all levels of experience. Winner of 11 awards including MacWorld's World Class Software Award 1987-1991.
**Publisher: FreeSoft**
**COM0060**



**$85**

## MacDraft 2.1

❼ Designed specifically for architectural/engineering drawing and drafting and technical illustration. MacDraft provides a fully scaled drafting environment that closely emulates the way you work and think when using a drafting table. Offers a full complement of drawing tools that are designed to provide extensive control over the creation and editing of objects. Tools include lines, circles, rectangles, arcs, polygons, ellipses, splines or Bezier curves, and freehand shapes. MacDraft provides a number of options that allow you to configure tools to meet your drawing needs. Users can create multi-layered scaled drawings in English or metric units, while MacDraft's dimension lines and area calculations are displayed in units of the drawing. MacDraft can even read MacDraw® II files.
**Publisher: Innovative Data Design CAD0039**

**$279**

## UserLand Frontier

❼ With UserLand Frontier, you don't have to choose between pretty icons and the power to customize and automate your Macintosh. For the first time, you can have power and ease-of-use. Frontier has all the development tools you need to get your scripts running quickly, including a full script debugger and structured symbol tables you can watch and edit while your scripts are running. When you're done, you can link scripts into Frontier's editable menu bar, or save them to the Finder desktop. **Publisher: UserLand**
UTI0272

**$189**

## Puzzle Master or Crossword Creator*

***Puzzle Master*** - Solve 250 classic New York Times crossword puzzles on your computer-plus a Create Mode for designing and solving your own puzzles. Save partial solutions, print puzzles, answers, and clues. Includes timer and scoring system to test your skills against the experts.
**ENT0383 $29.** ***Crossword Creator*** - Create crossword puzzles quickly and easily on your computer. Just type in the words and Crossword Creator will instantly generate the puzzle. Build your own dictionaries and use them for future puzzles. Includes Roget's II, The New Thesaurus, with wild card search features. Save options include desktop publishing files. Print clues, list, and puzzles.
**Publisher: Centron Software**
**ENT0440**

**$39***

## Easy Alarms 2.0

❼ The inviting, hassle-free way to organize your schedule, manage your to-do list and be reminded of upcoming events. Colorful calendars with in-the-squares text and pop-up menus make personal schedule and to-do list entries quick and easy. Reminders display text messages, play recorded sounds or execute custom scripts. You can send reminders and voice messages to others on your network, and you can view and edit their calendars. Powers users will appreciate Easy Alarms' extensive scripting and Apple events capabilities. Prints multi-column text, daily & weekly datebooks, and monthly calendars. Excellent for PowerBooks! Both desk accessory (for System 6) and application (for System 7) versions included.
**Publisher: Essential Software**
***5-User*** UTI0283 $189.
***10-User*** UTI0284 $325.

***Single User*** UTI0292

**$65**

# POWER USER SIMMS ONLY

# $39*

**A Power User Memory Expansion Kit will dramatically increase the power of your Mac.** And our fast, reliable overnight service will have your Kit in your hands tomorrow!

## MORE BRAIN POWER FOR YOUR MAC

Never again will you have to quit your word processor just to answer a question about a spreadsheet. Install extra memory and you can leave a letter open while you refer to last month's sales figures.

You can edit those monstrous scanner files with advanced graphics applications or develop your own custom HyperCard stacks. More memory means more power at your fingertips.

## PLUG IN INSTALLATION

Adding memory doesn't require technicians in lab coats. You'll find installation at home easy when you follow our FREE** step-by-step installation video instructions. Just open your Mac, slide out the main circuit board and plug in your SIMMs.

## WHAT DO I NEED?

Our helpful sales and technical staff is standing by to answer any questions and take the mystery out of memory upgrades. Memory cards come with one megabyte on each card and are usually sold in pairs — (2 @ $39 ea.)

The chart explains exactly what you need to achieve the desired level of performance.

To open your Mac Plus, SE, and Classics you'll need a specially designed tool — it's available from us as part of a handy tool kit for just $9.

## WHAT YOU NEED TO KNOW

Memory chips come factory-installed on plug-in cards, called SIMMs (Single Inline Memory Modules). Each one megabyte SIMMs card holds eight top quality, memory chips. We carry chips by all the major manufacturers like Texas Instruments, Intel and Samsung.

| **To upgrade a 4-socket Mac Plus or SE to this amount of memory** | **Do this: (Install in multiples of two only) SIMMs must be 150 ns or faster** |
|---|---|
| 2 MB | Remove all four existing 256k SIMMs, install two 1 MB Simms, leave two sockets for future expansion. |
| 2-1/2 MB | Remove only two 256k SIMMs, install two 1 MB SIMMs. |
| 4 MB | Replace all four 256k SIMMs with four 1 MB SIMMs. |
| **To upgrade a 2-socket Mac Classic II or LC to this amount of memory** | **Do this: (Install in multiples of two only) SIMMs must be 100ns or faster** |
| 4 MB | Install two 1 MB SIMMs |
| **To upgrade a 2-socket Mac LC II to this amount of memory** | **Do this: (Install in multiples of two only) SIMMs must be 100ns or faster** |
| 6 MB | Install two 1 MB SIMMs. |
| **To upgrade a 8-socket Mac II, IIx, IIcl, IIcx or SE/30 to this amount of memory** | **Do this: (Install in multiples of four only) SIMMs must be 120ns or faster** |
| 4 MB | Remove all four existing 256k SIMMs, install four 1 MB SIMMs, leave remaining sockets for future expansion. |
| 5 MB | Keep existing 256k SIMMs, install four 1 MB in remaining sockets. |
| 8 MB | Remove all four 256k SIMMs, install eight 1MB SIMMs |
| **To upgrade a 4-socket Mac IIsi to this amount of memory** | **Do this: (Install in multiples of four only) SIMMs must be 100ns or faster** |
| 5 MB | Install four 1 MB SIMMs. |
| **To upgrade a 4-socket Quadra 700 to this amount of memory** | **Do this: (Install in multiples of four only) SIMMs must be 80ns or faster** |
| 8 MB | Install four 1MB SIMMs. |
| **To upgrade a 16-socket Quadra 900 to this amount of memory** | **Do this: (Install in multiples of four only) SIMMs must be 80ns or faster** |
| 4 MB | Install four 1MB SIMMs. |
| 8 MB | Install eight 1MB SIMMs. |
| 12 MB | Install twelve 1MB SIMMs. |

Prices can vary a lot, based on quality, speed and demand. At press time our price for 1MB, 120ns SIMMs is $39.

Please call for the very latest prices and availability. Our sales staff will tell you what you need and help you make your choice an easy one.

## SPEED

Do you need 80, 100 or 120 Nanosecond (ns) chips? Nanoseconds are billionths of a second, so an 80 ns chip responds faster than a 100ns chip. The original Mac used relatively slow 150ns memory chips. The 68020 processor needs 120ns (or faster) chip, and the 68030 Macs like the speedier model.

## OVERNIGHT DELIVERY

Install a MacWarehouse Expansion Kit and working with your Mac will never be the same! Call us now. We'll help you select just the right Memory Upgrade, and we'll ship it overnight for just $3.

CHP 0012 120ns SIMMs........................................$39

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### MACWAREHOUSE 30-DAY MONEY BACK GUARANTEE

If, for any reason, you are dissatisfied with your Power User Memory Kit, you may return it for a full refund within thirty days of purchase. All you have to do is call us for a return authorization number and return this product, postage paid, in its original condition, with the original packaging and documentation.

### ONE YEAR WARRANTY.

MacWarehouse also guarantees its Memory Kits against manufacturer defects for one year from the date of purchase. We will repair the item or replace it at our discretion.

MUH2P

* SIMMs prices vary. Call for latest information.
** Limited Offer! Free video with purchase of 2 or more SIMMs.

# 7 GREAT REASONS

## ① Finder 7

The new Finder 7 is worth the cost alone. Access, organize, and view your folders, documents and applications faster and easier with the new improved finder.

## ② Balloon Help

Use the new Balloon Help for interactive help while you work. Turn this feature on and point to anything on your screen - a menu item, icon, or tool - and a "balloon" appears, telling you what it is and what it does.

## ③ File Sharing

With the new File Sharing features you can share hard drives, folders, and files, with others on your network; it has never been easier. You can even set passwords so that only specific individuals or groups can see your files and work with them.

## ④ Fonts in System 7

Apple's new advanced font technology gives you clear, crisp type on screen in any size plus the ability to print to many different kinds of printers. No more struggle with font compatibility.

## ⑤ Multitasking

With System 7 Multitasking is always optional. Now you can run multiple applications at the same time, and switch from one to another with a click of the mouse. System 7 also supports background processing, so that while you're working in your word processor, you can print a document and have your spreadsheet recalculating.

## ⑥ System Folder Simplicity

Apple has completely redesigned and improved the System Folder, making it much easier to organize. Predefined subfolders are created automatically, to reduce clutter. The new System Folder includes a Control Panel Folder, Extension Folder, Apple Menu Folder, Preference Folder and Startup Folder.

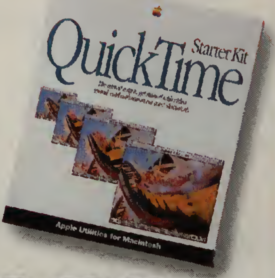
## ⑦ Publish and Subscribe

You can "publish" any part of your document (a graphic, chart or piece of text), to another document even in another application - which "subscribes" to the original. Any changes you make to the original document will automatically appear in the other, even across a network. Now that's live copy and paste!

**Plus Your FREE System 7 Tutorial from MacWAREHOUSE!**

*Video, sound, and animation on your Macintosh*

## QuickTime Starter Kit



Play QuickTime movies right on your Mac! Pause, fast-forward, rewind, advance frame by frame. Copy video and animation clips and paste them together. Transform still images and information into a single movie. Use a video-capture card and sound digitizer to record movies with the touch of a button. QuickTime brings Multimedia to the Mac!

**GRA0347**

*Publisher: Apple Computer, Inc.*

**$169**

## Macintosh PC Exchange

Open PC files on 3.5" MS-DOS and Windows-formatted floppy disks. Read DOS files on your Mac desktop. Open, save, rename, move, copy and delete documents just as if they were Mac files! Customize the program for even faster access. Requires Apple SuperDrive or compatible.

**COM0126**

*Publisher: Apple Computer, Inc.*

**$69**

# EXCITING NEW APPLICATIONS THAT TAKE FULL

### AccessPC 2.0

⑦ With AccessPC 2.0, your Macintosh can make MS-DOS files look just like Mac files, instantly. Pop any DOS floppy in your drive, and in a couple of clicks, the PC files are on your Mac desktop, looking and acting perfectly Mac-like. Edit, copy, save, print, play with the numbers, print again, and give the PC people back their diskette. It's that easy to use any PC file in any Mac application.

AccessPC is an easy-to-install control panel utility that's always been completely compatible with System 6 & 7.

**Publisher: Insignia Solutions**

**UTI0174**

**$60**

### DiskFit Pro

⑦ *Fast, efficient, easy backup*

For Finder-readable backup to floppies, cartridge or other hard disks, get DiskFit Pro. DiskFit Pro copies files from a hard disk to a "SmartSet" of floppies, and then updates that "SmartSet" with each subsequent backup. By replacing only the obsolete files in the backup set, DiskFit Pro keeps your SmartSet from growing every time you back up. Backups stay fast and backup sets compact. And since files stay in Finder format, retrievals are a breeze. Don't leave your data at risk, backup with DiskFit Pro. System 7 Savvy, System 6.x compatible.

**Publisher: Dantz Development**

**UTI0246**

**$74**

### SAM 3.0 or NUM 2.0*

⑦ **SAM 3.0** detects viruses by monitoring the suspicious activities that characterized them. Version 3.0 has enhanced update and repair capabilities, faster scanning, and more. The CDEV portion operates during normal Mac usage, and offers a number of options for checking disks and folders as you work. **UTI0214 $65**

⑦ **NUM 2.0** combines and integrates two outstanding collections of Mac utilities: SUM 2.0/NUM 1.1 plus automatic backup, data security (both DES and FasCrypt), and many productivity enhancements. Other utilities recover lost or accidentally deleted files, restore crashed hard disks and more. **Publisher: Symantec**

**UTI0151**

**$95***

**Overnight Delivery Only $3.00! Call 24hrs. - 7 days!**

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System 7 builds on the Mac basics you already love, and paves the way for a whole generation of powerful new software. A simple click of the mouse installs the software. Then advanced features take over, letting you work faster, easier, and more productively.

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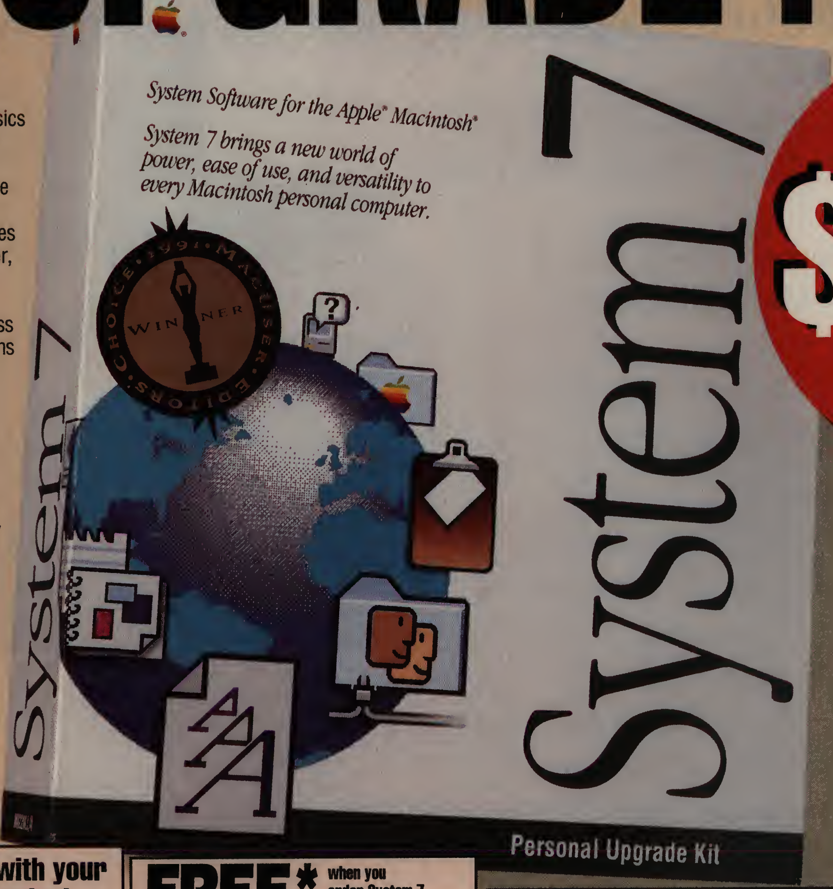
- Finder 7 lets you customize your desktop to the way you work
- File Sharing allows access to any folder and its contents among workgroups
- Publish & Subscribe lets you update several documents by only changing one
- TrueType gives you crisp, clear type of any size

*And that's just for starters!*
Now it's easier than ever to get System 7 up and running on your Mac, because you can get it right from MacWAREHOUSE! Join the generation of System 7 power users!
*Order System 7 today!*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System 7 brings a new world of power, ease of use, and versatility to every Macintosh personal computer.
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Personal Upgrade Kit

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**Limited Offer -- Not Available to Resellers.*

**System 7**
**Personal Upgrade Kit**
SYS0001
*Publisher: Apple Computer, Inc.*

**System 7**
**Group Upgrade Kit**
SYS0002 .................. **$279**
***System requirements: 2MB RAM; hard disk drive.***

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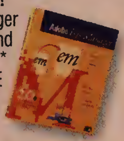

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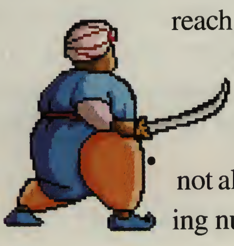
Parents: Better buy that bigger hard drive. Brøderbund is bringing out Kid Pix Companion, a $39.95 extension to the prepubescents' painting program Kid Pix. Among other things, Companion lets kids create (and save) QuickTime movies and slide presentations. Just what we needed: multimegabyte Kid Pix files . . . . Then again, slide-presentation software with an interface designed for children might make sense for some adults. 415-382-4400.

**By James Bradbury**

**Accessorizing:** The latest PowerBook configurations (bigger hard drives, more memory) make it increasingly practical to leave that desktop Mac on the store shelf. If you opt for a PowerBook-only setup, though, it doesn't mean that you have to forgo **the pleasure of a color monitor.** Computer Care's new BookView Imperial video adapter ($1,399 for the 140 and 170; $1,169 for the 100) can support monitors as large as 19 inches in 8-bit color — without any external boxes. A $395 BookView model that duplicates the PowerBook's internal display on an external monochrome monitor is also available. 612-371-0061. ✈ Even if your PowerBook is doing double duty as a desktop machine, you'll still want to **hit Route 66** every now and then. To make sure you don't run out of gas, take along a $79.95 NOTEpower DC-to-AC inverter so you can recharge your batteries (or run your PowerBook) from your car's cigarette lighter. 604-420-1585.

**Space cases:** Both outer and inner space are well represented on some recent CD-ROMs. Anatomy has come a long way since those plastic overlays in the encyclopedia. Folkstone Designs offers The Anatomist, a 13-megabyte HyperCard stack of human anatomy based on *The Anatomy Coloring Book.* 604-886-4502. $295. Even more ambitious is A.D.A.M. Software's A.D.A.M., which combines QuickTime movies of surgical procedures with medical illustrations. 404-980-0888. Five modules, $1,250 each (volume discounts available). ✈ For outer-space buffs, it's The View from Earth, a $79.98 CD-ROM documentary on the July 11, 1991, solar eclipse, from Warner New Media. Besides the expected color slide show of the big event itself, you get an eclipse tracker that shows **past and future solar eclipses** between 1940 and 2040. 818-955-6499.



**Sultans that swat:** Just when you thought it was safe to go back into the palace . . . . Brøderbund's Prince of Persia is an addictive action game that combines state-of-the-art animation and some simple puzzle solving with suitably gory graphics and sound effects. Your would-be prince has one hour to reach a princess trapped in a tower, with plenty of **scimitar-swinging thugs** and fiendish booby traps to dodge. Although the game is great in color, it's also perfectly playable (maybe even better) on a PowerBook. So perhaps not all those PowerBooks on airplane flights are actually crunching numbers. 415-382-4400. $49.95.

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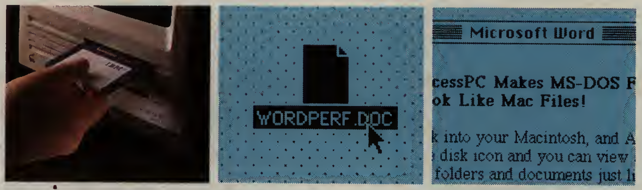

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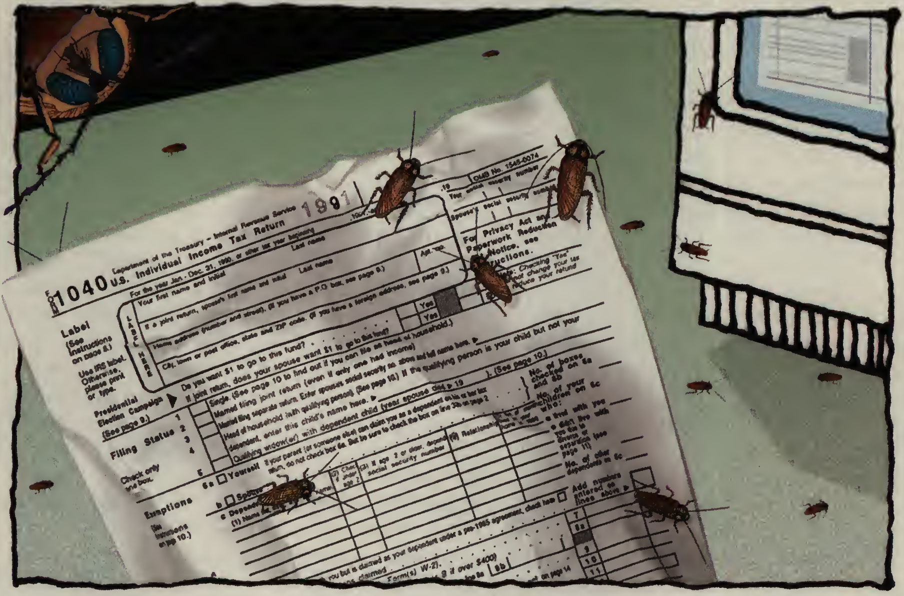
**CIRCLE 153 ON READER SERVICE CARD.**

# Unhappy Returns

*When a good program goes bad, make sure you don't get burned — especially when it comes to preparing your taxes. Plus: how to find free megabytes on your PowerBook's hard drive.*

**By Steven Bobker**


1040
U.S. Individual Income Tax Return
1991

We all have to deal with taxes. For years, many of us have used a program called MacInTax to make that unpleasant chore easier. MacInTax has always been a superb — even brilliant — program. Its combination of an intuitive interface, great calculating power, and superior printing capability made it a Mac paradigm in the true sense of that sadly overused word.

Last year MacInTax's original publisher, SoftView, had competition from ChipSoft, whose TurboTax was particularly well-suited for tax calculation. MacInTax excelled at printing, however. The perfect solution in 1991 was to use TurboTax to do the preliminary work and then transfer the data to MacInTax for printing. It looked like 1992 was going to be nirvana for the legions who use these programs.

Then ChipSoft bought SoftView. This year there was only ChipSoft's MacInTax, an amalgam of MacInTax and TurboTax.

Because of the time it takes to get articles prepared and printed, monthly magazines base their reviews on the earliest versions of each year's tax-preparation programs so that readers can get this information early enough to make intelligent buying decisions. Those versions, which are usually good but rarely perfect, are what the reviews must judge. Minor imperfections often tend to get glossed over, because it's reasonable to expect that they will be fixed before the final version.

This year saw the usual laudatory reviews for the first versions, and several publications went out of their way to praise MacInTax. I got a copy of the program early, read the reviews, did a bit of preliminary work on my taxes, and waited for the final release. My mistake.

The reviewers and I should have hammered harder on the program back in January. There were flaws and problems, and although many of them were fixed, some were not. The final release was slow to arrive, and the state versions came even later. What's more, the final version was unpredictably buggy, which isn't reassuring in a program that calculates your taxes and might be the only thing standing between you and the IRS.

The final version ChipSoft shipped had the base number 9.01, onto which an *a, b,* or *c* was appended. Users who received one of these versions had to report specific problems in order to receive another version with a different suffix. It wasn't clear what problems the different versions fixed, why different versions were available simultaneously, or why different users got a particular version. All the versions had problems. For example, version 9.01c fixed some details but broke the Interview feature for many users.

My own experience with MacInTax wasn't pleasant. The first steps went well and I seemed on that road to tax nirvana, but then the crashes started. Sometimes I'd fill in a line and save it successfully and sometimes not. By actual count, I crashed more than 100 times. ChipSoft suggested that I increase MacInTax's memory allocation. I gave MacInTax 3 megabytes of RAM on my 10-megabyte LC, which should have been enough to get rid of my problems. No way. In fact, the memory allocation seemed to have no effect whatsoever.

The company's next suggestion was to turn all my extensions off. I turned them off; it wasn't simple, though, because all of my fonts are loaded with MasterJuggler. In my case, no extensions means no fonts and screens that are very hard to read. I took the relevant fonts from their suitcase and installed them directly into the System file.

This suggestion didn't help. In fact, it made things worse, so I put all my extensions back. Next I got rid of the Index and Prefs files MacInTax creates. That helped a bit, and finally, hours after I should have been finished, I was ready to print. I have a RealTech Laser (a wonderful printer) and had no problems printing my forms out cleanly. Almost. For some reason, all the forms were able to print in a batch except Schedule B, which had to be printed in a separate pass.

With the job essentially done, I got a bit curious, so I tried a few experiments. I could print Schedule B by itself but not in combination with another form, schedule, itemization, or worksheet. This remained true even after I'd trashed the Index and Prefs files for what seemed to be the 20th time.

I started investigating ChipSoft's tech-support areas on CompuServe (Section 8 of the Mac B Vendor Forum and section 17 of the Mac A Vendor Forum) and found quite a few similar tales of woe. Making direct and bulletin-board contact with ChipSoft at the height of tax season was difficult, and only lucky users succeeded. The company's on-line support was at best icy and often bordered on rude. On-line support should have been the saving grace. It wasn't, nor was it ever quick. But it was on-line where I learned about the existence of the different final versions, with never a clue to their differences.

Some users experienced few or no problems, but they were in the minority. Many simply could not print to HP DeskWriters or got unacceptably ugly results. Others, in contrast, could print easily to DeskWriters. ChipSoft's solution was to tell users who were having problems to get a new driver from HP (a slow process that would have forced them to file for an extension), but it never told them that the driver was immediately available in HP's CompuServe forum.

Because I was puzzled by how such a good program could have gone so bad in such a short time, I asked ZiffNet/Mac users to recount their experiences. An overwhelming number had problems at least as serious as mine. Many had had to file for an extension; several found more errors and decided (wisely) to check all calculations manually.

ChipSoft has shown only slight interest in these shortcomings. It has collected reports of problems into a so-called enhancement database, which the company will use to determine areas that need fixing before next year's edition. Meanwhile, ChipSoft either failed to buy SoftView's old versions of MacInTax or has chosen to no longer make them available. Several users have requested old versions of forms so they can make necessary corrections, and they were willing to pay for them. Although SoftView always made such items available, ChipSoft simply said no.

What's the moral here? Actually, there are several. Don't accept reviews as the final authority. Test your new software promptly to be sure it does what you want it to. And be especially careful with your tax software.

### Persistence Pays

In my roundup of Mac books last month, I failed to find a really good System 7-only text, because I just didn't look hard enough. There is one: It's called *Guide to System 7* (1-55623-745-6; $9.95), by Michael Fraase, and it's part of Macintosh Rapid Reference series, from Business One Irwin.

This small book (only 102 pages, and pretty small pages at that) is packed with power instructions that show readers how to really use the new features of System 7. The book is definitely not a basic Mac text. Its target readers range from knowledgeable users to network administrators in medium- and large-sized companies. The network tips alone are worth the price of the book.

The author is well known for being opinionated and he sometimes says things I don't quite agree with, but he's never wrong. There are many ways to reach the same end, and he tends to tell you how he would get there. He pulls no punches, and you will find bug reports and workarounds throughout the book. Even if you think you know System 7, *Guide to System 7* would be a worthwhile addition to your reference library.

### Pick of the Month

Getting started in communications is never easy. You need both a modem and communications software. Many modems come bundled with commercial software such as QuickLink II or an old version of MicroPhone, and sometimes a modem is bundled with freeware such as FreeTerm 3.0. None of that software is suitable for long-term use, because it will bring you more frustration than results, assuming that it works in your environment in the first place.

Fortunately there's a solution to these problems. Use the bundled software to download ZTerm, available on bulletin-board systems or from on-line services. This shareware package ($30, registration only; $40, with disk) from Dave Alverson (5635 Cross Creek Court, Mason, OH 45040) has enough features and power to satisfy all users. For file transfers, it offers Xmodem, Ymodem, and the powerful Zmodem. CompuServe and ZiffNet/Mac users can also use B Plus, the most efficient file-transfer protocol for those services. ZTerm has a scrollback buffer whose size is limited only by available memory. Dialing setups and macros can automate logging on and connecting to other modems. It runs on Macs with at least 512K of RAM.

ZTerm's menu structure is inspired and easy to master. There's even an intelligent Append command on the File menu. In fact, the whole program is easy to use, thanks to its excellent 40-page manual, which comes as a disk file.

The really important performance questions are: Can it make and hold connections under less than perfect conditions, and is it very efficient at transferring files? The answer is that there is no better program for connecting and transferring data. ZTerm is available on ZiffNet/Mac (filename ZTERM.CPT), and you'll find it in Library 1 of the Download & Support Forum.

### Road Tips

Apple sometimes lives in the past. The long-discontinued Apple Tape Drive 40 robs 1.6 megabytes from the hard drive of every PowerBook that Apple has ever shipped. The reason is simple. The tape drive couldn't handle more than 40,000K per tape. Because Apple's default disk-

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drive partitions still make provision for the Apple Tape Drive's limited capacity, a 40-megabyte PowerBook disk drive is formatted for only 40,000K. (Although 40,000K might sound like 40 megabytes, it isn't. A megabyte is 1,024K, which means that 40 megabytes is 40,960K.)

Look at the amount of space on your PowerBook 140 or 170's 40-megabyte hard drive. It should show a total space of 38.3 megabytes, but it can hold nearly 40 megabytes — 39.9 to be exact. Here's how to get the extra 1.6 megabytes.

First, back up the hard drive, because you're about to erase everything stored there and you'll need a good backup. I know most of you back up regularly (right??), so all you'll have to do is update your current backup. Even you hard cases who have never totaled a drive and never backed up will have to do so in order to get this 1.6 megabytes.

Restart your PowerBook, using the Disk Tools disk that's included in your set of system disks. Run the Apple HD SC Setup application, and select Partition and then Custom. Remove the existing partition. (The gray space you see in the diagram is the space you're going to recover.) Now create a new Maximum Macintosh partition. It will consume all the space in the graphic and will show that it occupies 39.9 megabytes. Save everything, reinstall the system, and restore your files. Enjoy the extra space.

This trick works for PowerBooks with 20-megabyte hard drives as well. A PowerBook 100 or a 140 with a 20-megabyte hard drive should have 18.3 megabytes of available space. You can extend that amount to 19.9 megabytes by using this procedure.

### A Real Easter Egg

This month's Easter egg is as authentic as you can get. You'll find it buried deep within Now Software's spiffy Now Up-to-Date calendaring program. You might have noticed a clue to this egg in the program's Sample Calendar, which shows the phases of the moon, indicated neatly and iconically. At first it looked as if someone had obtained all that data and entered it in, but some experimentation on my part showed that the data was being generated by the program itself. The question: How to get to it?

The answer is simple if not too straightforward. Open any Up-to-Date calendar in either a single-day or multiday view (the weekly and monthly views don't work). Hold down the Command and Option keys while double-clicking on an existing event or when you're creating a new event. In the Event Info window, select the Repeat pop-up menu. Note the interesting new entries at the bottom.

Now you know when Easter is in 1993 (April 11) and in 1999 (April 4).

**Steven Bobker keeps busy acting as sysop for *MacUser*'s on-line service, ZiffNet/Mac, where he can be reached at 72511,45.**

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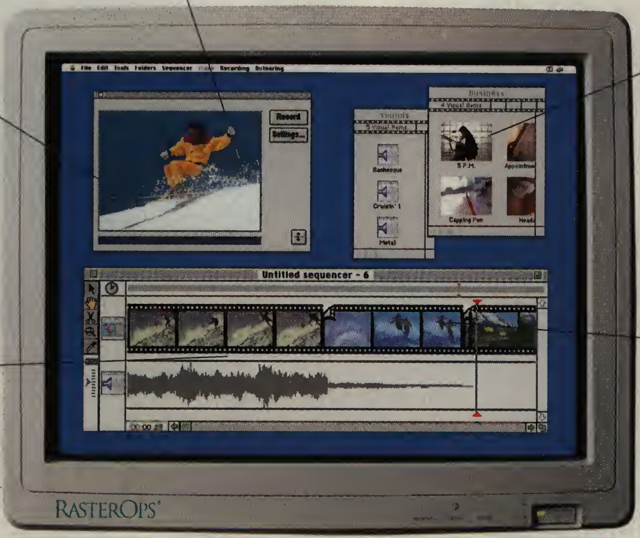

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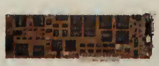

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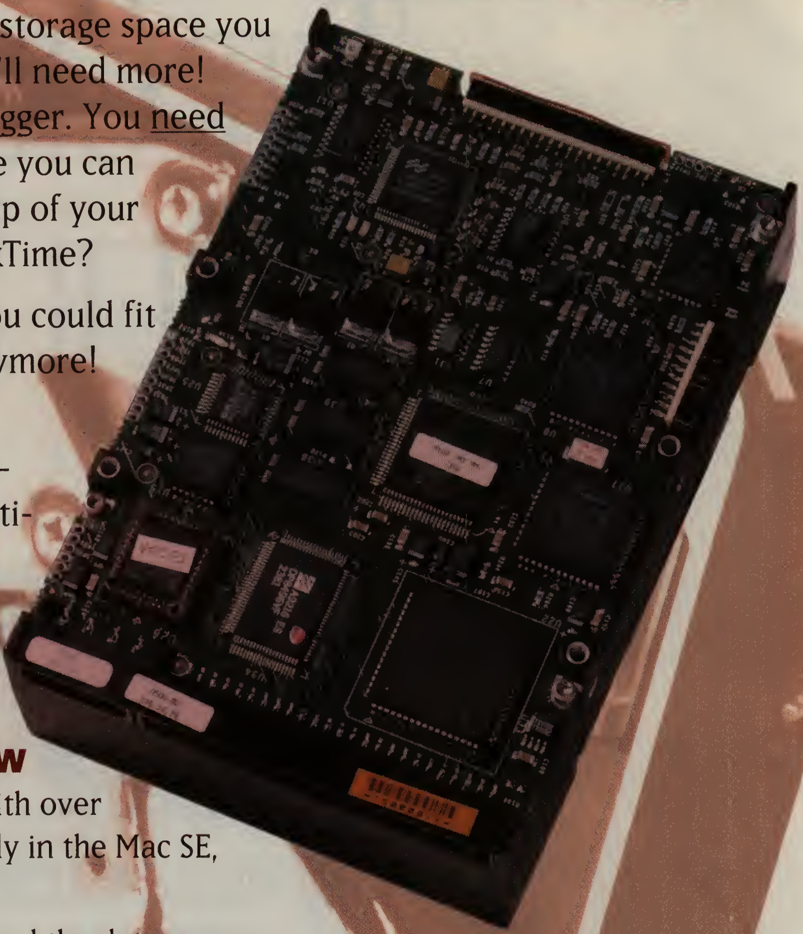

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It used to be that the largest drive you could fit in a Ci was about 500MB, but not anymore! Today, the number is 830 MB.

APS offers the Toshiba 830 for $1749–the 3.5- inch storage solution for multi-user systems, workstations, file servers, oh...and the individual Macintosh user who just can't get enough storage.

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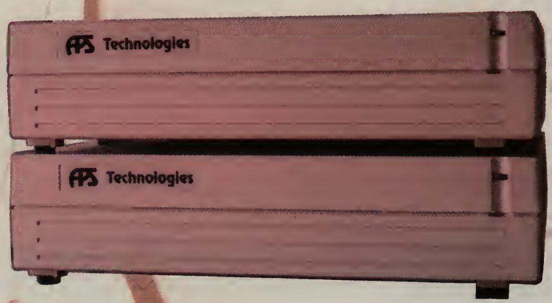

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# How to Buy
# Input Devices

**If, like most other Mac users, you spend a lot of time entering data into your Mac, you probably wish for things that can make the whole process a little easier and a lot more comfortable. Such as a trackball that fits your hand, a keyboard that doesn't hog most of your desk, or a mouse you can use when giving presentations. Luckily, there are plenty of good, reasonably priced third-party input devices around that let you work more comfortably and more productively. To find out more about specific products, see the March '92 issue of *MacUser*, page 48, for a review of four alternatives to Apple's mouse and the May '92 issue, page 48, for a review of six trackballs. See also "Graphics Tablets: Drawing the Line," April '92, page 98.**

**By Victoria von Biel**

✔ Of course *you'd* never forget to do this, but it does happen: If you're buying off the shelf, make sure the device you get works with the Mac. Some manufacturers produce Mac and PC versions of the same device that are packaged similarly.

✔ If you're left-handed, make sure you try the mouse or trackball first. Some models work just as easily with either hand, others you may have to rotate to use comfortably, and some are designed exclusively for the right hand.

? Before you buy, find out what the return policy is. It can take several days to get accustomed to a new keyboard, mouse, or trackball. If after that time you *still* aren't comfortable using it, you should be able to return it.

✔ Don't be too swayed by the argument that one device is more *ergonomically* correct than another. This buzzword is applied to most devices these days and has become virtually meaningless. *How* you work often influences your comfort and health more than what products you use.

✔ For maximum comfort, look for devices that keep your hand and wrist on a relatively even level. Avoid products that make you flex your wrist too much.

$ Beware of all-in-one keyboards that combine trackballs and keyboards that can be removed or rearranged. They're good for southpaws — you can put the numeric keypad or trackball in a more convenient position — but check out the price: That sort of combination package can cost more than if you bought the individual parts separately.

✔ The higher a mouse's or trackball's resolution, the more responsive it is.

$ The software that comes with your mouse or trackball is an added value — it can boost productivity by letting you control speed or assign certain actions (such as cutting and pasting) to certain clicks — but most users never make the most of it. Find out what the software can do before you buy the device, and once you own it, take advantage of the software's features.

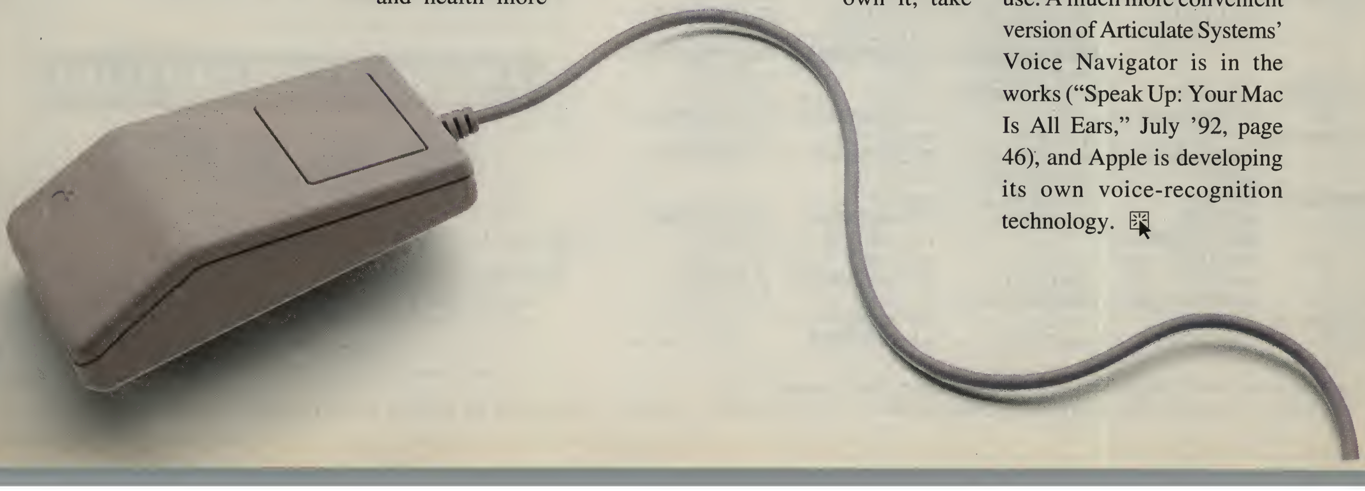
✔ If desk space is an issue, trade in your mouse for a trackball, but first find out the trackball's dimensions — some are surprisingly large.

✔ Hate the PowerBook's trackball? Small mice and trackballs (Appoint's Thumbelina and MacMicroSpeed's MicroTRAC, for example) plug in to the PowerBook's ADB port and are tiny enough to be tucked into the carrying case when you're on the go.

✔ For presentations, look for cordless mice and miniature trackballs you can hold in your hand.

✔ A digitizing tablet that uses a pen or stylus for entering data gives you extreme control over input, but unless you spend a lot of time using painting or photo-editing applications, you probably don't need one.

? What's the input device of the future? Voice-recognition products that let you just tell your Mac what to do. These devices are available, but they're hard to learn and use. A much more convenient version of Articulate Systems' Voice Navigator is in the works ("Speak Up: Your Mac Is All Ears," July '92, page 46), and Apple is developing its own voice-recognition technology.



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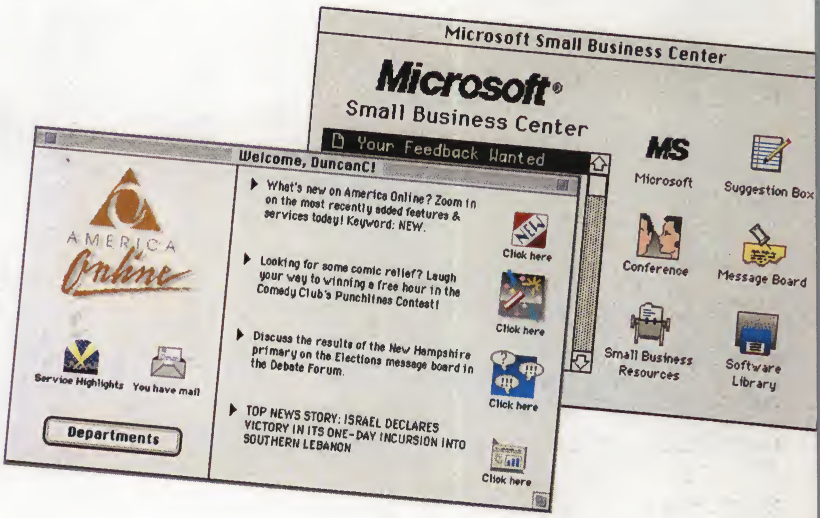

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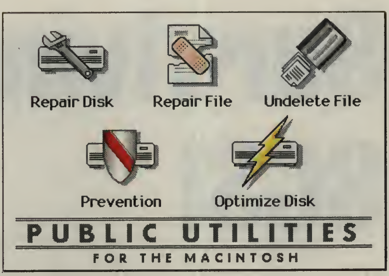
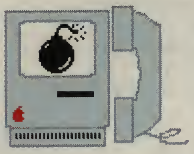
Want to add tear-off menus to System 7? Select a network printer without going to the Chooser? Add Finder comments that don't disappear when you rebuild the desktop? The five control panels and two extensions included in Super 7 Utilities, from Atticus Software, let you tinker with System 7 to your heart's content. Some are more useful than others (do we really need a commercial version of the Help Balloon utility Helium?), but power users are bound to find something they've been longing for. 203-324-1142. $99.97.

**By Victoria von Biel**



**Help yourself:** The ideal disk-repair utility would fix problems *before* they happened, right? That's almost what Public Utilities from Fifth Generation Systems does. Described as "preventive maintenance" for your Mac, Public Utilities regularly monitors disks for potential trouble and then either **automatically fixes what's wrong** or notifies you and offers a solution. The utility has some safe-computing features too: Processes that can irreparably damage data if used incorrectly (using a sector editor, for example) are not accessible — a nice feature if you're loading this on a bunch of Macs in your office. 504-291-7221. $149.



**Everybody needs somebody:** Sometimes a disk-repair program can't make things right, and frankly, *you* don't know what's wrong with your Mac. To the rescue come two telephone support services that promise no waiting and **answers to all your questions,** regardless of problem or program. The catch? You've got to pay: TeleGuru (800-374-4878 or 703-442-4540) charges $2.75 a minute (less for some corporate accounts); if you want the charges to appear on your phone bill, you can call 900-622-4878, which costs $2.95 a minute. Vmacs charges $3.50 for the first minute and $2.50 for each additional minute when you call 900-680-8622 (call 800-858-8622 or 219-663-2611 to set up corporate rates). Another idea: Mail-order company Bottom Line Distribution (900-420-3636) will answer any questions, whether you've bought products from them or not. Bottom Line charges $2 for each minute. ☎ You can save money by defining your problem *before* calling: TeleGuru offers a terrific DA that not only displays your Mac's configuration but also includes an electronic notepad where you can jot down specific symptoms. Alternatively, you can download the free utility MacEnvy (which does the same thing) from an on-line service near you. Find it in *MacUser's* ZiffNet/Mac in the Download & Support Forum; the filename is MACENV.SIT.

**Safety net:** Not many gurus — tele- or otherwise — can help if your floppy disk dies before you've had a chance to back it up. When you use Polaroid's DataRescue diskettes, however, you get access to a **free data-recovery** service that promises to restore your data within 48 hours, sending back two restored disks and a couple of empty ones (for backup, maybe?). DataRescue diskettes are available from computer stores and dealers for about $22 for a box of 10. 800-443-5873 or 707-576-8210.

# Surviving SCSI

*SCSI — the hellish standard for connecting peripheral devices to the Mac — has earned its ugly acronym. Here's how to cope.*

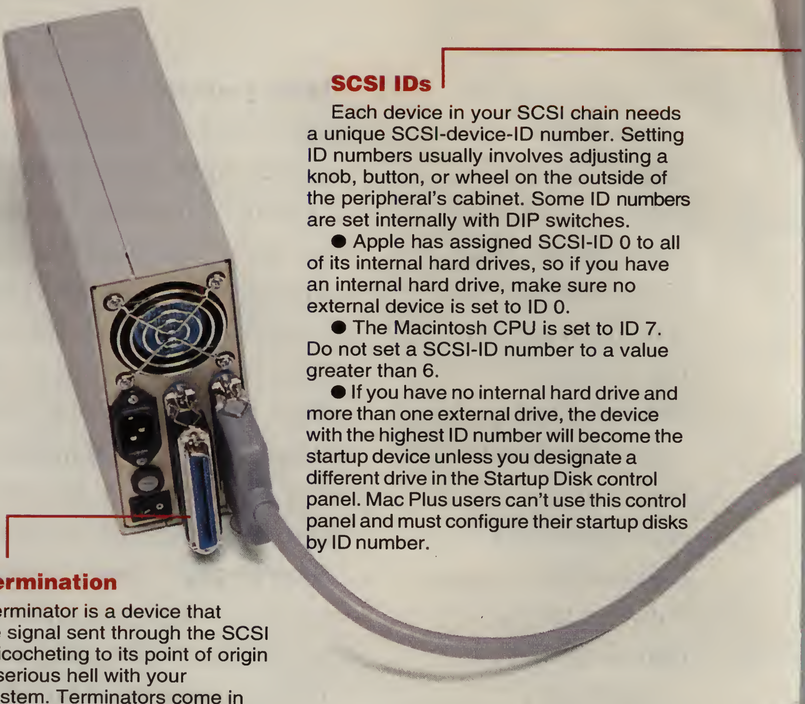
**By Christopher Breen**

If you're thinking of expanding into the exotic world of external hard drives, scanners, and CD-ROMs, prepare to cozy up to the SCSI standard, the sometimes quirky and often confusing method used to connect peripheral devices to the Mac.

SCSI (pronounced "scuzzy") stands for Small Computer Systems Interface. Technically, SCSI is a bus, or a collection of wires that conduct information from one location to another. SCSI devices are plugged in to the SCSI port on the back of your Mac, and you can chain as many as seven devices, including the Mac's internal drive.

SCSI's bad reputation is the result of several things, most notably cable incompatibilities and the fact that electric signals degrade as they travel along the bus. Here's how to keep things relatively trouble-free.

**Christopher Breen is a writer, musician, and MIDI consultant who lives in the San Francisco Bay Area.**



### SCSI IDs

Each device in your SCSI chain needs a unique SCSI-device-ID number. Setting ID numbers usually involves adjusting a knob, button, or wheel on the outside of the peripheral's cabinet. Some ID numbers are set internally with DIP switches.

- Apple has assigned SCSI-ID 0 to all of its internal hard drives, so if you have an internal hard drive, make sure no external device is set to ID 0.
- The Macintosh CPU is set to ID 7. Do not set a SCSI-ID number to a value greater than 6.
- If you have no internal hard drive and more than one external drive, the device with the highest ID number will become the startup device unless you designate a different drive in the Startup Disk control panel. Mac Plus users can't use this control panel and must configure their startup disks by ID number.

### SCSI Termination

A SCSI terminator is a device that prevents the signal sent through the SCSI cable from ricocheting to its point of origin and raising serious hell with your computer system. Terminators come in three flavors: external plug-in terminators; internal resistor packs, which — if they're from an enlightened manufacturer — are easy to remove or switch off; and motherboard terminators. Motherboard terminators are connected to the SCSI jack inside your Mac and can be used only when no internal hard drive is present and your SCSI cable is longer than 18 inches. Check the manual to see what termination a device uses.

- SCSI devices should theoretically be terminated at each end of the SCSI chain and *nowhere* between. Internal drives are always terminated, so users with such drives need worry only that the last device in the physical SCSI chain is terminated. Sadly, this setup doesn't always work. Possible exceptions include situations in which your SCSI bus is shorter than 18 inches (terminate only the last device) or when the cable between two devices is longer than 10 feet (add termination at the 10-foot mark and at the end).
- Recently introduced *active* terminators (as opposed to *passive* terminators, found on SCSI devices until now) sport voltage regulators that result in a cleaner SCSI signal with less cross talk and may help when your cable length exceeds 12 feet.

### A New SCSI?

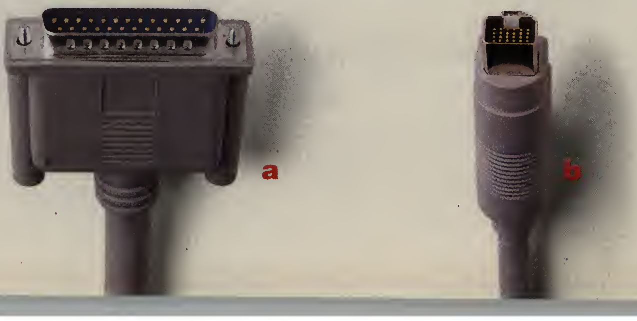
In 1991, ANSI (the American National Standards Institute) approved the new SCSI-2 standard. Highlights include greater compatibility among peripherals manufactured by different vendors; *fast* SCSI, a scheme that increases the SCSI data-transfer rate to 10 megabytes per second; and *wide* SCSI, an option that allows for a data path enlarged from 8 bits to 16 or 32 bits.

With new standards come new complications: Wide SCSI will require an additional cable containing 24 extra data lines. And to take advantage of SCSI-2's increased speed, you need a SCSI-accelerator card and a drive sprightly enough to keep up with these fast data-transfer rates.

### Cables

SCSI cables come in varieties equaled only in the world of breakfast cereals.

- Your first cable is likely to be a SCSI system cable (a), which runs from the back of your Mac (25-pin male) to your first SCSI device (50-pin male).
- The PowerBooks use a special 30-pin connector (b).
- To connect one standard SCSI device to another, use a SCSI peripheral cable, which has a 50-pin male connector on each end (c).
- Nonstandard SCSI cables include the 25-pin-male-to-25-pin-male system cable (Macintosh to nonstandard SCSI device), the 25-pin-male-to-25-pin-male peripheral



cable (nonstandard to nonstandard peripheral), and the 25-pin-male-to-50-pin-male peripheral cable (nonstandard to standard peripheral). Also available are 50-pin-female-to-50-pin-male extender cables.

- According to the SCSI specification, the total length of your SCSI cables must not exceed 6 meters (19.6 feet). Remember to factor the length of the internal-cable wiring of your peripherals (about 1 foot) into your calculations.
- Use high-quality double-shielded SCSI cables containing wires arranged in twisted pairs.

c

## Troubleshooting

Never make or break SCSI connections with the power turned on. Your SCSI cable carries approximately 5 volts, which, if shot down the wrong line while you're attempting to make a cable swap, might fry your Mac or peripheral.

Here's a simple checklist for when things go wrong:

✓ **Check all SCSI connectors.** Are they firmly seated, screwed down, and clipped on?

✓ **Check ID numbers** for possible conflicts.

✓ **Turn on your peripheral devices first.** Some older drives take a while to crank up to speed, and if you boot the Mac too quickly, they won't appear on your desktop.

✓ **If you're using System 7,** be careful to install compatible versions of any software that might affect your SCSI device or system. Running an accelerator with a System 6 driver under System 7 is probably not a recipe for success.

If you're still having trouble, try the following:

✓ **Test each peripheral** individually to ensure that it works. Make sure all your devices are turned on.

✓ **Juggle things around:** Change the device IDs, place peripherals in a different position in the SCSI chain, swap cables, move the terminator one device up the line, or remove the termination altogether.

✓ **Check placement.** Some peripherals demand to be placed in a specific location on the SCSI chain (at the end, for example). Read the manual, and put this finicky machine in its proper place. Other devices, most notably backup peripherals such as tape and removable-cartridge drives, don't work at all if they're connected to the same chain. Only one backup device can be on a chain.

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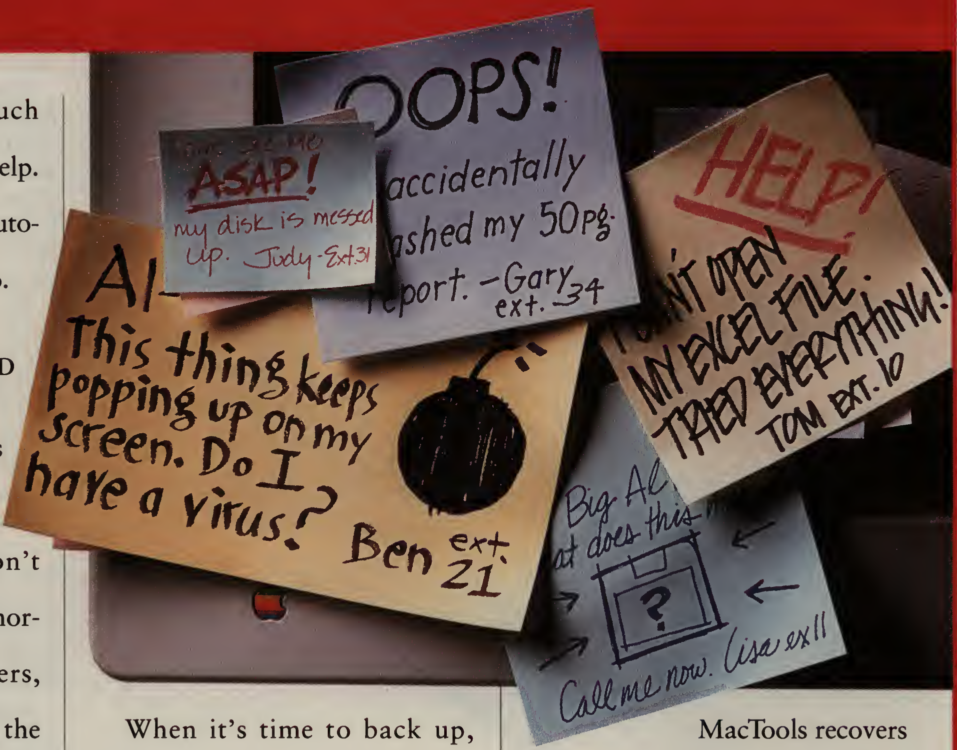
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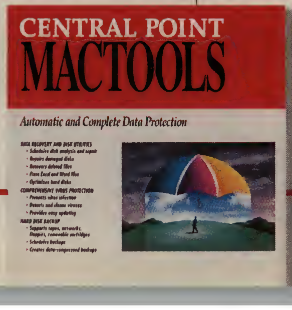

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# Sound Bytes

*Sure your Mac can beep — it can even quote Arnold Schwarzenegger. But chances are you're not making the most of its incredible sound capabilities. Here's what you have to do.*

**By Bob LeVitus**

You probably know that your Mac has a built-in speaker (how do you think it makes those beep sounds?). But did you know that your Mac, unlike PCs and clones, is capable of playing high-quality sounds with no additional hardware? And that many Macs — the Classic, LC, IIsi, PowerBooks, and Quadras — include a microphone so you can record sounds? Not only that, but for Macs that don't have a microphone, there are several inexpensive hardware devices you can easily plug in to your system.

But is having sound on your Mac worth a darn? I think so — at least if you have disk space, RAM, and network bandwidth to spare. If so, you can add voice notes to documents (assuming you have an application that supports voice annotation), send voice mail across your network, or add narration to training stacks and QuickTime movies. You can even use sound to make your Finder more fun.

Note: I assume you're using System 7. If you're still using System 6, you can do most of the things described below, but you're on your own as to exactly *how* to do them.

### Sound In

The first thing you need to know is how to get sound into your Mac. If you have one of the Macs that includes a microphone, adding sound is a piece of cake. For instance, here's all you have to do to create your own System beep:

**1.** Open the Sound control panel, and click on the Add button.

**2.** Click on the Record button, say "beep" into the microphone, and then click on the Stop button.

**3.** Save the beep, give it a name, and click on OK.

**4.** To hear your beep, either click on its name in the Sound control panel or double-click on its icon in the Finder.

The beep you've just created is now a standard Mac document stored inside the System file. After you've created a sound, you can move it, copy it, or drag it into the Trash, just as you would any other file. You can even use the standard Copy and Paste commands to add sounds to the Scrapbook (to hear a sound, just click on the Play Sound button, on the Scrapbook page). If you don't want to store all your sounds in the System file, you can use Suitcase II, from Fifth Generation Systems, or MasterJuggler, from ALSoft, to manage sounds stored elsewhere on your hard disk.

And what if your Mac doesn't have a built-in microphone? Don't worry — several good recording devices are available. I use the MacRecorder Sound System Pro, from Macromedia (formerly MacroMind•Paracomp; 600 Townsend Street, San Francisco, CA 94103; 415-442-0200; $349, including the excellent SoundEdit Pro software). Articulate Systems (6000 Cummings Park, Suite 4500, Woburn, MA 01801; 617-935-5656) also makes recording devices. Choose from the no-frills

VoiceImpact ($119) or the full-featured VoiceImpact Pro ($299).

All three of these recording devices come with software for manipulating, editing, and saving sounds; Macs with built-in mikes don't include this type of software. Plug any of these devices in to your modem or printer port and install the software, and you'll have all the capabilities of a Mac with a built-in microphone and then some.

An added benefit is that these devices all include audio input (also known as *line-in*) jacks that make it easy to record sounds from a cassette, CD, or videotape. Although you may be able to plug a cassette, CD, or video player in to the microphone jack on a Classic, LC, or PowerBook (proceed cautiously, however; you could damage your Mac), getting quality sound recordings that way is more difficult than using software that comes with third-party devices.

### Sound Out

Once you've got a microphone attached to your Mac, what the heck are you going to do with the sounds you record? Well, in addition to creating beep sounds (OK, maybe that's not the most productive thing you can do with your Mac), there are already several programs — Word 5.0 (Microsoft), Acta 7 (Symmetry), and KidPix (Brøderbund), to name a few — that let you attach sounds to documents. If you use electronic mail such as Microsoft Mail or CE Software's QuickMail, you can send voice mail as easily as you send text.

I use Word 5.0's Voice Annotation command all the time to create voice notes for my editors and myself. If you have Word 5.0, check it out. Choose Voice Annotation from the Insert menu, and record a voice note, using whichever type of microphone you have connected to your Mac. Voice annotations are represented in your document by a little speaker icon; to hear the annotation, double-click on its icon.

Other applications, such as Director, from Macromedia, and Premiere, from Adobe, let you use sound almost as easily as Word does. Although you can't actually record sounds, you can easily import them for use in presentations.

If you're a HyperCard user, you can use ResCopy or ResEdit to import sounds. After you've imported a sound, you can play it by typing `Play "sound name"` in the message window or in any script.

**Soon you'll be speaking or typing based on which communicates your point the best.**

Another place where you're going to hear more and more sounds is in QuickTime movies. It's simple to add sound in QuickTime, and a little sound can add a lot of impact.

### Perils and Pitfalls

The biggest problem with sound on the Mac is that it eats up disk space and can require a lot of RAM to record. Adding a mere *two-word* voice annotation to a 2,000-word Word 5.0 document causes the file size to balloon from 15K to 200K. This can be a problem if you have limited disk space or limited RAM or plan to send such a file across a network.

You can reduce a sound's RAM and disk-space requirements by recording it at the lowest quality level your program allows. Most programs offer a choice of recording qualities, such as good, better, or best. The better the recording quality, the more disk space the sound consumes and the more RAM it takes to record it. A sound recorded at the best setting is bigger and requires more RAM to record but sounds great; sounds recorded at the good or better setting use less disk space and need less RAM to record but don't sound as good. Play around with these quality settings. For most voice recording, the lowest quality is good enough to help you make your point.

In other words, use sound sparingly, at least for now. In the future, working with sound will become more viable. As hard-drive and RAM prices continue to drop and networks get faster, the penalties for using sound — in terms of disk space, RAM, and network speed — will diminish. It won't be long before you'll choose between speaking and typing based on which method will communicate your point more effectively rather than which will use more disk space or RAM or take longer to send across your network.

### Mastering Sounds

Now let's have some fun. Bruce Tomlin's SoundMaster, a popular shareware control panel, lets you add sound to most Mac actions. Install it, and you'll be able to specify a sound that will play

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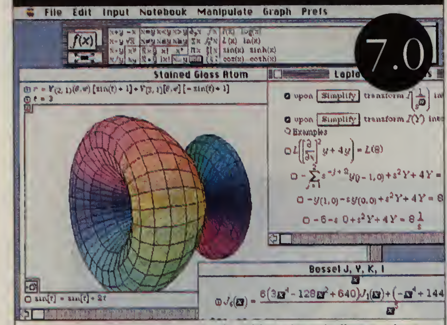

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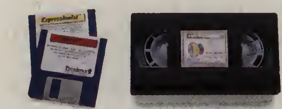

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CIRCLE 27 ON READER SERVICE CARD.

## The System 7 File: Getting Around

Many Mac users will tell you that the SFGetFile and SFPutFile dialog boxes — better known as the Open and Save dialog boxes — are the root of all evil. But they're not so bad if you learn a few keyboard shortcuts to tame them. Reader Charlie Yang wrote in with some of his favorites:

- Command-up arrow moves you up one level, to the parent of the current folder.
- Command-left arrow or Command-right arrow cycles through all available drives the same way the Tab key did in System 6.
- The tilde key takes you to the bottom of the list.

Here are a few of my own tips:

- The System 7 Save dialog box has two components — the file list and the name field. The Tab key toggles between them.
- Typing any letter takes you to the first item in the current folder that starts with that letter. (In a Save dialog box, the file list must be active for this to work; see the previous tip.) If you're quick about it, you can type the first two or three letters and get directly to the first file that starts with those two or three letters.
- Typing Command-period is the same as clicking on the Cancel button.
- Clicking on the volume name is the same as Command-up arrow — it moves you up one level, to the parent of the current folder. (The volume name is the name of the current disk. It usually appears just above the buttons on the right side of the dialog box.)

Submit your favorite System 7 tips, either by mail or by modem, to ZiffNet/Mac's MacUser Forum (please include your name and address too). If you submit the month's best tip, you'll not only receive notoriety and fame but you'll also get a spiffy "I Beat the System" T-shirt.

when you start up; restart; shut down; insert a disk; eject a disk; press the Tab, Shift, Return, or Delete key; and more.

Yes, SoundMaster is silly, but it sure makes using a Mac a lot more fun. If you want to use it with System 7, however, make sure you get version 1.7.3, now widely available from on-line services and user groups. I've also included SoundMaster in my book *Stupid Mac Tricks,* although the version in the book is not System 7-compatible.

There are thousands of cool sounds around — you can download SoundMaster sounds from most on-line services and bulletin boards, and many user groups offer huge collections of sounds as well. For those who'd like to try SoundMaster, plus some cool sounds and other sound-manipulating software, we've put together a package of goodies on *MacUser*'s on-line service, ZiffNet/Mac. You'll find it in the Download & Support Forum (filename BTSSNS.CPT).

A recent trend is for professionally recorded sounds to be sold as commercial software. Sound Source is the pioneer in this field; so far it sells two collections of sounds, sound effects, dialogue, and music from the original "Star Trek" television series (2985 E. Hillcrest Drive, Suite A, Westlake Village, CA 91360; 805-494-9996; $49.95 each). The recording quality is extremely good, and both of the collections include the latest version of SoundMaster. Sound Source says it'll have collections from other TV shows and movies available soon and hints that it may soon release similar collections of QuickTime movies.

You can also make your own sounds to use with SoundMaster. For example, I recently connected my laserdisc player to my MacRecorder and digitized Arnold Schwarzenegger's voice from the Terminator movies. When I restart, Arnold says, "I'll be back." When I shut down, he says, "*Hasta la vista,* baby."

By the way, MasterJuggler includes a feature called HotSounds that is similar to SoundMaster.

### Sound-File Formats

System 7 brought with it a new sound-file format known, cleverly enough, as System 7 Sound. (Older file formats included SoundEdit, snd, and sound resource.) You can easily tell the difference — System 7 sounds are the only ones that make noise when you double-click on their icons in the Finder. Unfortunately, most of the sounds available, including the ones in the Sound Source's Star Trek collections and most of the stuff on bulletin boards and on-line services, are in one of the older file formats and must be converted to the new format before you can use them with System 7. This shouldn't be much of a problem: Most programs — MasterJuggler, Suitcase, SoundEdit Pro, and SoundMaster, for example — don't discriminate among sound

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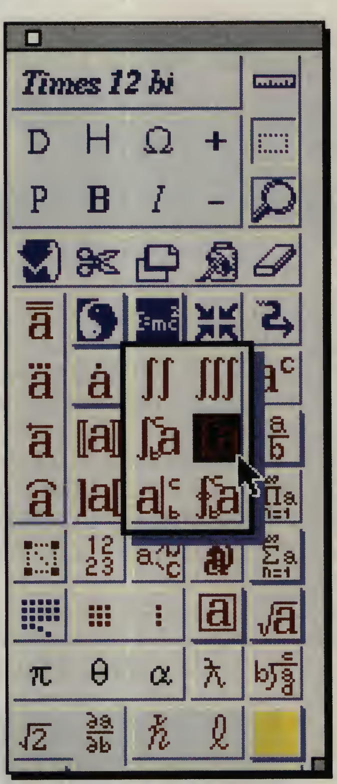

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types; they let you work with old or new sound formats with equal ease.

If you do want to convert old-format sounds to the System 7 Sound format, you'll need either SoundExtractor, a shareware program by Alberto Ricci (available from ZiffNet/Mac and other fine on-line services), or SoundEdit Pro, from Macromedia.

SoundExtractor converts most old sounds to the System 7 Sound format easily and automatically. SoundEdit Pro is almost as easy to use — you just open the sound file in SoundEdit Pro, and then use the Save As command to save it in System 7 Sound format.

By the way, you can make any System 7 sound your Mac's startup sound, even if you don't have SoundMaster or Master-Juggler. All you have to do is put the sound (or an alias of it) into your Startup Items folder.

### Better-Sounding Sounds

If you're using a lot of sounds with your Macintosh, you might want to consider buying an external speaker or a pair of them. Almost any speaker will do, but you'll get the best results from a speaker with built-in amplification; if your speaker doesn't have a built-in amp, it won't be very loud.

I have a set of MacSpeakers, which are designed specifically for use with a Mac (Persona Technologies Division of Monster Cable, 274 Wattis Way, South San Francisco, CA 94080; 415-871-6000; $229). They sound great, they look great, and they're packed with features: 10 watts per channel, external controls for bass and volume, simulated stereo, and sturdy shielded cases.

I find external speakers particularly useful when I do product demonstrations or presentations. Recently I've started bringing my MacSpeakers along to bookstore demos for my book *Stupid Mac Tricks.* They make a big difference — they're a vast improvement over the built-in Macintosh speaker when you're playing to a crowd.

For less expensive speakers, check your local Radio Shack store. Radio Shack carries several inexpensive speakers with built-in amplification. They won't sound as good as the MacSpeakers, but they are a lot less expensive.

**Bob LeVitus is the author of *Dr. Macintosh, Second Edition,* and has hundreds of Macintosh sounds on his hard disk.**

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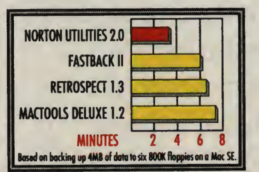

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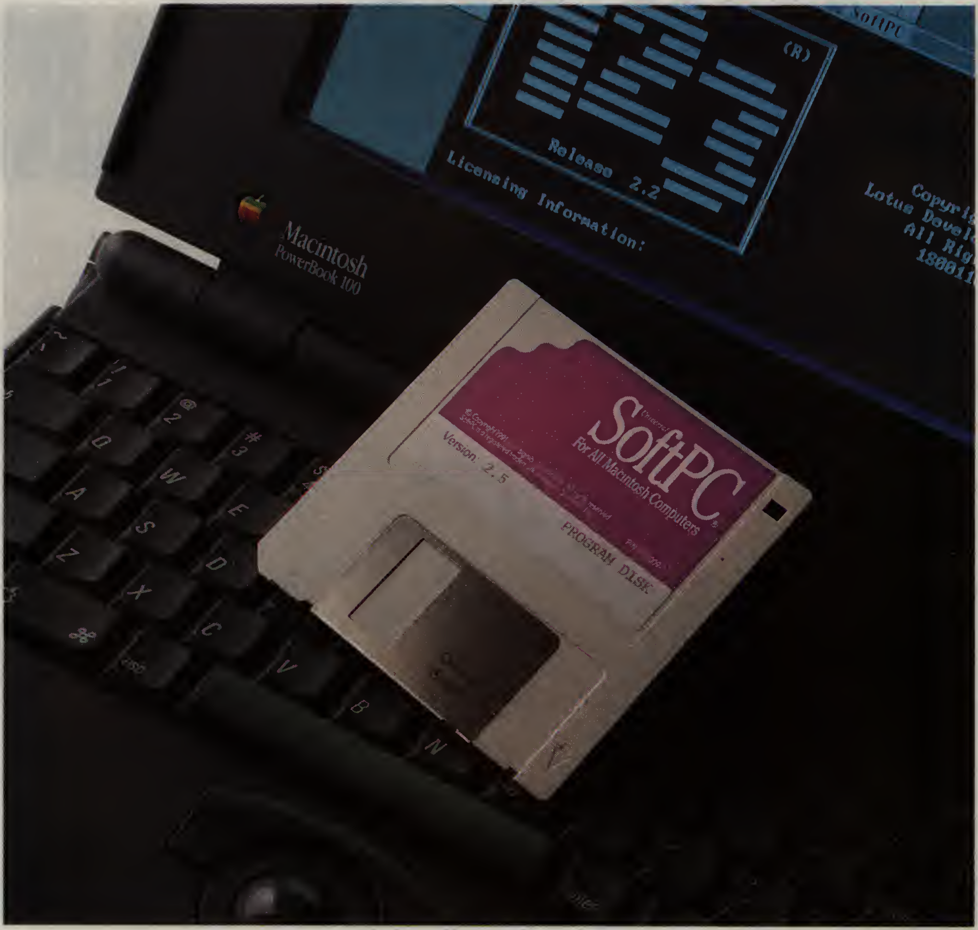

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*You can also contribute tips electronically via Ziff-Net/Mac, the on-line service for* MacUser. *Send them to Gregory Wasson at 72511,36. Be sure to include your full name and mailing address along with the text of the tip.*

**Compiled by**
**Gregory Wasson**

### Claris Resolve

There is no apparent way to select the default font (or size, style, and so on) for new spreadsheets that open in Claris Resolve. Here's a solution:

Create a new script, and type in the font and size of your choice, using the appropriate scripting commands. For example, `Text Font "Times"; Text Size "14"`.

The secret to having this become the default script is to save it with the name *startup* in the Resolve Scripts folder, which resides with the Resolve application. Any characteristics saved in this script will take effect when you open a new spreadsheet.

Ira Lansing
San Rafael, CA

### Aliases (System 7)

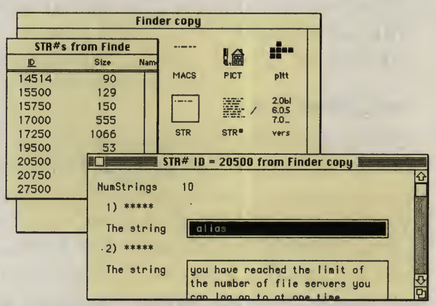
Are you tired of constantly deleting or changing the alias suffix System 7 adds to the end of each alias name? Here's how to use ResEdit to change the suffix to anything you want.

First make a duplicate of the Finder to work on, and open it with ResEdit. Then open the STR# resource, and double-click on ID 20500 (see Figure 1). The first STR# is the alias suffix. You can change the suffix to anything you like, as long as the new suffix is at least one character long — otherwise the Finder appends a number to the name of the alias.

Eric Westlund
Redwood City, CA

### MacroMaker

If you've switched from System 6 to System 7 but still want to use Apple's MacroMaker utility that used to be included with



| ID | Size | Name |
|---|---|---|
| 14514 | 90 | |
| 15500 | 129 | |
| 15750 | 150 | |
| 17000 | 555 | |
| 17250 | 1066 | |
| 19500 | 53 | |
| 20500 | | |
| 20750 | | |
| 27500 | | |

NumStrings 10
1) *****
The string alias
2) *****
The string you have reached the limit of the number of file servers you can log on to at one time

Figure 1: Using ResEdit, it's easy to change the *alias* suffix to any other suffix you like.

## Tip of the Month

### Nisus 3.06

In this age of multifarious word processors, many proprietary formats have sprung up, and quite frankly, it's a pain to switch from one format to another. So if you use Nisus 3.06, from Paragon Concepts, you'll be pleased to hear that Paragon has added a feature that eases working with foreign file formats. The only problem is, this feature isn't mentioned in the Nisus manual, so it's not likely that you know about it.

Nisus already includes internal translators for Microsoft Word and MacWrite, but that does little good if you want to open a Microsoft Word document saved with the Fast Save option or a document from MacWrite II, WriteNow, or DOS WordPerfect 4.2. Claris makes an XTND package that is a collection of translators that lets you read files created in different formats. If you have this XTND package installed in your System Folder and you hold down the Option key while selecting either Open or Save As, Nisus 3.06 will use the XTND translators (see Figure A). Not all XTND translators have export capabilities, however, so the list of file formats available with the Save As command may not be as extensive as the list of file formats available with the Open command.

Various programs contain the Claris XTND package, but MacWrite II has the best selection of translators. If — as is likely — you don't own both MacWrite II and Nisus 3.06, MacLinkPlus/Translators from DataViz (55 Corporate Drive, Trumbull, CT 06611; 800-733-0030 or 203-268-0030; $169) has all the translators you need, including ones for PC file formats.

Adam C. Engst
Redmond, WA

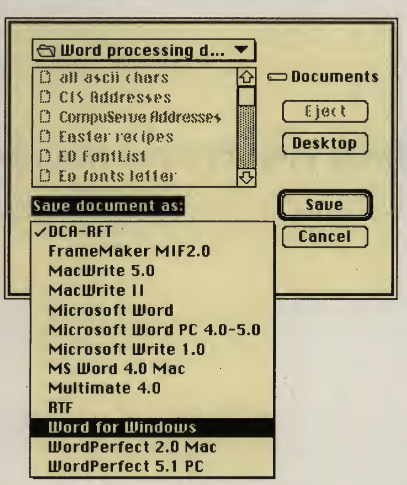


Figure A: If you have Claris' XTND translators installed in your System Folder, it's possible to dramatically increase the Open and Save file formats available in Nisus 3.06.

system software, here's how to do it. First, open the System Folder and drag in the *contents* of the MacroMaker folder (*not* the folder itself). Then select Restart from the Special menu. Once your computer has rebooted, the familiar tape-player icon should be back on the menu bar and MacroMaker will be fully functional as long as you do not place it in a folder inside the System Folder.

Michael Caldwell
Maiden, NC

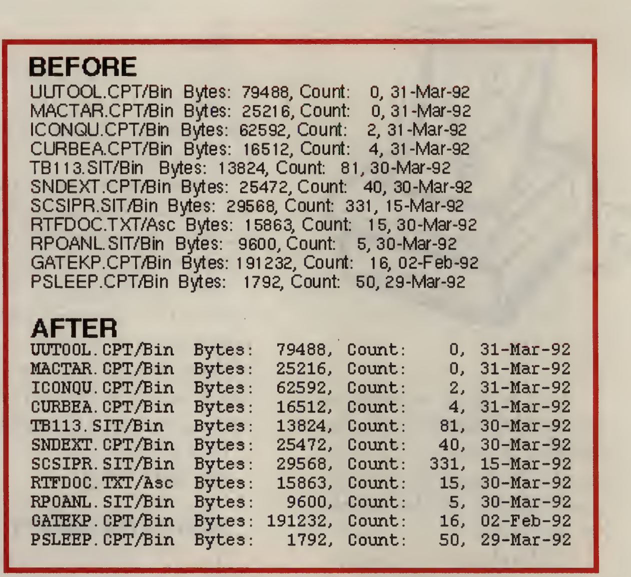
### PageMaker 4.2

With PageMaker 4.2, you can use the Shift-Function keys to access styles on the style sheet, which is a great feature. Even if you're not using the function keys, assign numbers to your styles to bring those frequently used styles that are on the bottom of the list up to the top.

Kevin Cooper
Van Nuys, CA

### Word Processing

From time to time, I need to copy and paste columnar data from various applications into Microsoft Word, but when I do this with certain applications — Maple or MiniTab, for example — the data no longer lines up nicely in columns. I solved this problem when I realized that some text-based editors format their columns by using a *monospaced* font such as Courier and make the columns line up by inserting the correct number of spaces. If the default font in your word-processing program is a *proportional* font (such as Times or Helvetica), the columns won't line up when you paste in the data (see Figure 2). You can correct this by simply selecting the data you've pasted in and changing the font back to Courier or to another monospaced



**BEFORE**

```
UUTOOL.CPT/Bin Bytes: 79488, Count: 0, 31-Mar-92
MACTAR.CPT/Bin Bytes: 25216, Count: 0, 31-Mar-92
ICONQU.CPT/Bin Bytes: 62592, Count: 2, 31-Mar-92
CURBEA.CPT/Bin Bytes: 16512, Count: 4, 31-Mar-92
TB113.SIT/Bin Bytes: 13824, Count: 81, 30-Mar-92
SNDEXT.CPT/Bin Bytes: 25472, Count: 40, 30-Mar-92
SCSIPR.SIT/Bin Bytes: 29568, Count: 331, 15-Mar-92
RTFDOC.TXT/Asc Bytes: 15863, Count: 15, 30-Mar-92
RPOANL.SIT/Bin Bytes: 9600, Count: 5, 30-Mar-92
GATEKP.CPT/Bin Bytes: 191232, Count: 16, 02-Feb-92
PSLEEP.CPT/Bin Bytes: 1792, Count: 50, 29-Mar-92
```

**AFTER**

```
UUTOOL.CPT/Bin  Bytes:  79488,  Count:    0,  31-Mar-92
MACTAR.CPT/Bin  Bytes:  25216,  Count:    0,  31-Mar-92
ICONQU.CPT/Bin  Bytes:  62592,  Count:    2,  31-Mar-92
CURBEA.CPT/Bin  Bytes:  16512,  Count:    4,  31-Mar-92
TB113.SIT/Bin   Bytes:  13824,  Count:   81,  30-Mar-92
SNDEXT.CPT/Bin  Bytes:  25472,  Count:   40,  30-Mar-92
SCSIPR.SIT/Bin  Bytes:  29568,  Count:  331,  15-Mar-92
RTFDOC.TXT/Asc  Bytes:  15863,  Count:   15,  30-Mar-92
RPOANL.SIT/Bin  Bytes:   9600,  Count:    5,  30-Mar-92
GATEKP.CPT/Bin  Bytes: 191232,  Count:   16,  02-Feb-92
PSLEEP.CPT/Bin  Bytes:   1792,  Count:   50,  29-Mar-92
```

**Figure 2: Use a monospaced word-processing font to retain the columnar format in data received from on-line services.**

DB
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font. The same trick works with columnar data received from on-line services.

Albert Coons
San Antonio, TX

**Word 4.0 and 5.0**

Here's a quick way to call up style sheets: Select Commands from the Edit menu (Word 4.0) or Tools menu (Word 5.0), and select the Apply Style Name command. Select the style-sheet name from the list that appears on the pull-down menu, and use the documented procedure for assigning keyboard commands and saving the Word Settings file.

Now whenever you want to apply a particular style to a paragraph, you need only type your keyboard command.

Jan Strnad
Los Angeles, CA

**WordPerfect 2.1**

Thanks to the introduction of publish-and-subscribe, it's now possible to generate tables in WordPerfect. It's not exactly quick and easy, but it is possible.

Just create a publisher from within a spreadsheet program that has publish-and-subscribe capabilities (such as Lotus 1-2-3). Open a WordPerfect document, and subscribe to the edition as either Text or Text with Attributes. What you get is a block of text with the columns of the spreadsheet separated by tabs.

You can't edit this text from WordPerfect, but you *can* alter its attributes, including typeface, font size, and tab stops. Change the font size so that the text fits on your page and move the tab stops until the text lines up the way you want it to, and you've got a table. You can even give it a border.

Byron C. Mayes
Bear, DE

**Floppy Disks**

Every once in a while, you encounter a floppy disk that just can't be read from or written to any more. Before you slam that plastic demon into the trash, crack it open (if you haven't already done so from frustration). Inside the diskette on both sides of the shell are thin clothlike pads that protect the disk medium from rubbing against the shell. If you remove these pads from the shell, you'll get two really good screen cleaners — these pads will lift dust right off your screen.

Chris J. Catalano
Farmingville, NY

**Finder (System 7)**

Under System 7, if you want to clean up just one or two icons in a window rather than all the icons, you have to hold down the Shift key while selecting Clean Up from the Special menu. This is an annoying procedure if you're accustomed to System 6, which let you just select an icon and choose Clean Up.

Here's a way you can avoid having to hold down the Shift key. Just drag the icons you want to clean up to the scroll bar or the title bar of the current window, and they'll automatically be repositioned on the grid. Be careful, however, that you don't drag the icons out of the window, because you'll remove them from the folder.

Morris Ng
Saratoga, CA

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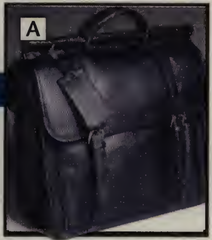

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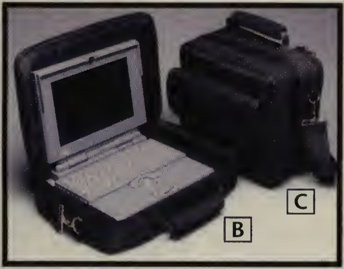

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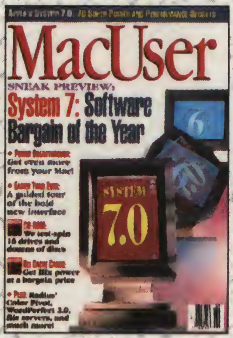

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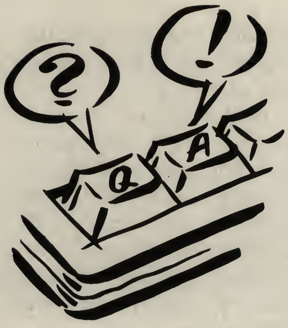

*Questions, anyone? Here's where to get answers from the experts. Bob LeVitus is the author of the best-selling* Dr. Macintosh, *2nd edition. Andy Ihnatko is a longtime activist with the BCS•Mac user group. Together, they're ready to answer questions about everything Macintosh.*

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*Don't want to wait for an answer? Post your question on ZiffNet/Mac,* MacUser's *on-line service, and get a reply from Bob (76004,2076), Andy (72511,204), or one of the other* MacUser *experts. See the masthead in this issue for instructions on how to sign up.*

**By Bob LeVitus and Andy Ihnatko**

### Crash of the Titans

**Q.** I recently bought a Classic II with 4 megabytes of RAM and a 40-megabyte internal hard drive as a replacement to my aging but faithful SE. It doesn't make sense to me that the Classic II can't operate under any version earlier than System 7.0.1. I'm also running into problems with bombing, screen freezes, the occasional disappearance of folders and files, the appearance of more than one System Folder, and unexpected appearances of a Trash folder.

What's going on here? Is my Classic II defective?

John Dabbas
San Diego, CA

***Andy:*** Apple's set a grim precedent for the way new Macs deal with system software. Until fairly recently, a new Macintosh usually came with the newest version of system software, but Apple only *recommended* that you use it. So if you wanted to use a IIci with System 4.2, for example, you could. You'd wind up with so many system crashes that the FAA would come to your house searching for flight recorders, but, hey, that was your business. Then Apple started hard-coding barriers into ROM; if you weren't using at least a specific version of system software, your Mac couldn't boot. I know of no way to get such a Mac to use an older version of the system. (And don't try editing the vers resource of the system to fake your Classic II into thinking 6.08 is actually 7.0.1; the consequences are fairly ghastly, as I can attest.)

Bombing and screen freezes are *semi* normal. A sad fact of Mac life is that when you're the first user on your block to buy Apple's latest Mac, you're going to suffer the slings, arrows, and system crashes of older software that innocently does something your new Mac doesn't like. Sit tight; write a bunch of letters to the publishers of whatever software's crashing; and rest assured that new, compatible versions will be released real soon now. If it's the *Finder* that's crashing and you've already removed all non-Apple system extensions, then have a little chat with your dealer and get yourself a Mac that doesn't have these problems.

Your Finder wackiness is because System 7 wreaks havoc with the data structures the Finder uses to keep track of files. Apple has

## * . . . But Were Afraid to Ask

Simplicity is the watchword of this section. This is where we pay homage to the sort of unaffected, basic questions that don't get asked too often these days, because of recent changes in the federal tax code. So if an agreeably simple, unaskable question pops into your head, by all means send it in. To prevent the IRS from assessing a fundamentality tariff on your next 1040, we'll say it was sent in by an internationally known mass murderer.

**Q.** OK, I'm confused. Our office used PostScript fonts back when PostScript was the only outline-font format available. When TrueType came out, Apple seemed to promote it as *the* standard in font technology, implying that PostScript Type 1 was a dinosaur.

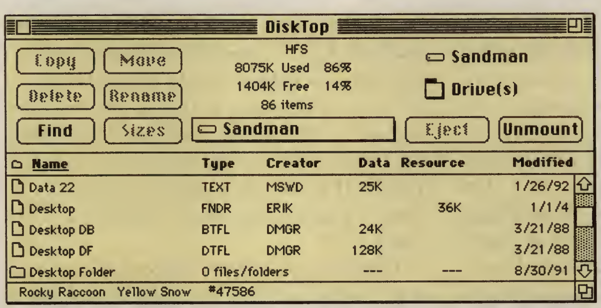
So we started buying TrueType fonts. But now Apple has licensed ATM and says it'll be incorporated into system software real soon. And Apple seems to be downplaying TrueType. Is Apple saying that TrueType is dead? Should we switch back to PostScript fonts? What do you think?

Professor Plum
In the library with the lead pipe

***Andy:*** In making ATM part of system software, Apple isn't so much saying "TrueType is dead" as "We don't like Microsoft nearly as much as we used to." See, Apple thought it'd rather get into bed with Microsoft than with Adobe. By codeveloping TrueType, Apple would create a new font standard that would enhance document compatibility between Mac and IBM formats as well as avoid having to pay licensing fees to Adobe. That was the idea, anyway. Unfortunately, lots of ugly lawsuits erupted, and worse yet, Microsoft made it clear that it'd do whatever it took to make Windows *the* standard for graphical computing, even if that involved buying surplus tactical missiles from the now-defunct Soviet Union.

Plus, TrueType wasn't really catching on — Type 1 is the definitive font standard. Versions of ATM are available for nearly every major platform, and there isn't a single DTP service bureau in this quadrant of deep space that doesn't expect the documents you submit to use PostScript fonts.

Now for some of the practical hands-on advice that has become the hallmark of this column ever since my editor called and yelled at me last month. There's no longer any really compelling reason to continue buying TrueType fonts. Sure, having outlines and bit maps in one file is keen and some folks swear to Tarim that TT quality is superior to that of PS at sizes smaller than 6 points or so, but these are hardly compelling reasons to abandon a wildly popular industry standard. Plus, there are half a dozen programs available that can convert one format to the other (FontMonger, from Ares, and Fontographer, from Altsys, to name two). You shouldn't go to the trouble and expense of buying new PostScript fonts to replace your TrueTypes, but buying solely PostScript fonts from now on would probably be wise.



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| Desktop DB | BTFL | DMGR | 24K | | 3/21/88 |
| Desktop DF | DTFL | DMGR | 128K | | 3/21/88 |
| Desktop Folder | 0 files/folders | | --- | --- | 8/30/91 |

Rocky Raccoon Yellow Snow #47586

**Figure 1: Apple's System 7 Tune-Up extension fixes the bug that causes files to disappear, but it can't bring back files that have already departed. You can try to retrieve them with CE Software's DiskTop, which can delete all the invisible Desktop files (Desktop, Desktop DB, and Desktop DF). When you restart, your lost files *might* reappear.**

fixed the problem with version 1.1.1 of its System 7 Tune-Up extension — a later version might be available when you read this. This free system patch (available from user groups, ZiffNet/Mac, and other on-line sources) prevents additional files from disappearing but doesn't restore files that have already been sucked into the Bermuda Triangle.

There are three methods for retrieving those lost files. First, try locating them by name with the Finder's Find command, and then copy them onto another disk. If that fails, rebuild the Desktop file on the afflicted hard drive and see if the Hoffa-esque files reappear (to rebuild the desktop, hold down the Command and Option keys as you restart). If even *that* offers you no succor, open the volume with CE Software's DiskTop or another file-diddling utility, delete all the invisible Desktop files you find in it (see Figure 1), and restart. Robert Gibson's reCoverUp, a freeware utility available from ZiffNet/Mac and user groups, can do this last job for you if you're a little squeamish about deleting files.

Each of these methods has about as much chance of recovering your data as Spike Lee has of winning the Best Director award at next year's Academy Awards; it's possible, but don't put money on it. Unfortunately, the only 100-percent sure way to keep additional files from disappearing is to reinitialize the afflicted drive (the appropriate software should have come with the drive) and start with a clean slate.

***Bob:*** You should install Tune-Up 1.1.1 (or later) regardless of whether you've lost files, but be sure to follow the installation instructions, particularly if you've experienced that nasty disappearing-folder bug.

### A Skinnier System

**Q.** What counts as system software when you look at About This Macintosh on the Apple menu? I have 4 megabytes of RAM on my LC, but the system software is creeping up over the 2-megabyte mark. Apple says you can run System 7 with 2 megabytes of RAM, so apparently the basic System 7 software is substantially less than that. I'm guessing that when you add fonts, DAs, extensions, and so on, some of these things are counted as system software. Is there any way I can find out what's fattening up my system software?

Phillip Mayer
Oak Brook, IL

***Bob:*** The number you see when you choose About This Macintosh represents the amount of RAM your system software is using. Among the things that can make it use more RAM are extensions, control panels, file sharing, and the disk cache. I use about 30 extensions and control panels, keep file sharing turned on, and set the disk cache to 512K, which causes my system software to use more than 5,000K of RAM.

Here's how you can evaluate what is actually using all that RAM on your Mac:

**1.** Boot your Mac while holding down the Shift key. Under System 7, this disables all your extensions and control panels and sets the disk cache to 16K. Keep holding the key down until you see the Extensions Off message on the Welcome to Macintosh startup screen. System-software RAM usage should drop to less than 1,200K when you do this.

**2.** Choose About This Macintosh from the Apple menu, and write down the figure displayed for your system software.

**3.** Create a folder anywhere on your hard disk, and name it Disabled Stuff.

**4.** Move the contents of your Extensions and Control Panels folders to the Disabled Stuff folder. The Extensions and Control Panels folders inside your System Folder should now be empty.

**5.** Drag one item (for example, the After Dark control panel) from the Disabled Stuff folder into your System Folder. You'll see a dialog box that says, "Control panels need to be stored in the Control Panels folder or they may not work properly. Put After Dark into the Control Panels folder?" Click on OK. (Note: If the item you dragged into the System Folder was an extension instead of a control panel, expect to see slightly different wording in the dialog box. Click on OK in either case.)

**6.** Reboot your machine. Choose About This Macintosh, and write down the figure displayed for your system software. To determine the amount of RAM used by After Dark, subtract the number you wrote down in step 2 from this number.

**7.** Repeat this process with each item in the Disabled Stuff folder.

Here are the numbers I got for some common extensions and control panels (these figures are approximate; your mileage may vary): Adobe Type Manager uses 200K; After Dark, 100K; QuicKeys, 250K; and Easy Access, 15K. Among the other control panels that consume RAM only when they're turned on are File Sharing (250K) and Virtual Memory (350K).

Printer drivers, fonts, sounds, and DAs don't use RAM if they're in your System Folder, Apple Menu Items folder, or Extensions folder at startup, although sounds and DAs consume RAM when you use them.

***Andy:*** Geez, Bob, you have more RAM allocated for your system software than I have in my Mac! If any of you Texas readers notice your lights dimming for no apparent reason, it's just Bob starting up his Mac.

P.S. Many extensions (such as ATM) have their own RAM caches. Folks who want to trim down their system RAM consumption should check all their control panels.

### What the Heck Is PRAM?

**Q.** I recently replaced my Mac Plus' battery, but after only a few months, I began seeing aged-battery signs again (the speaker volume changed, clock and calendar settings were off, mouse tracking was reset to the slowest

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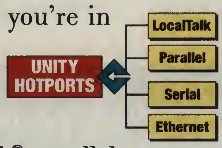

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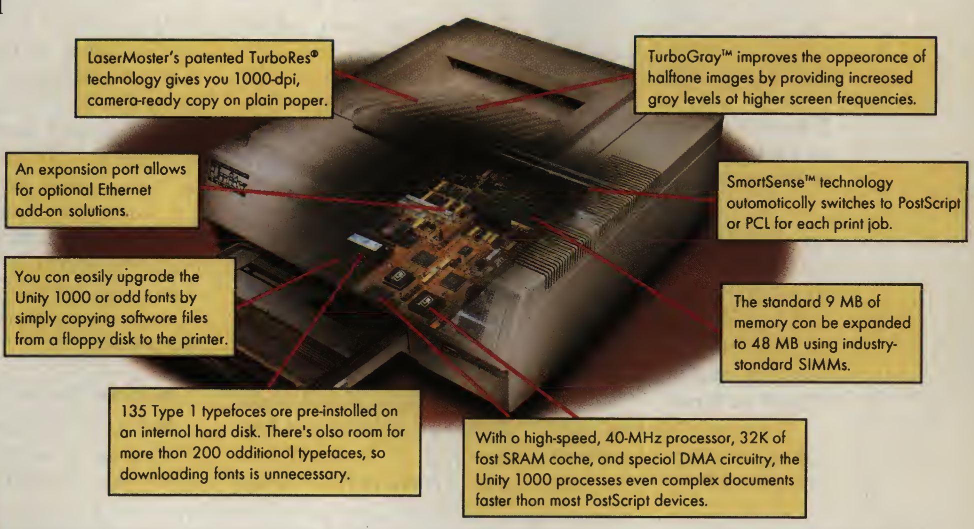

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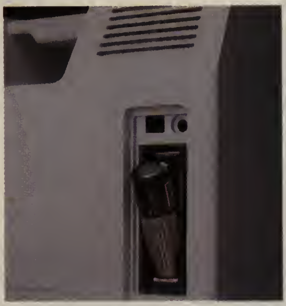

Figure 2: You can zap the PRAM on a Mac Plus by removing the battery for 10 to 15 minutes.

speed, and so on). The battery supposedly checked out fine on a meter at my local Apple dealer, who said that, barring an incorrect battery installation, my Mac might have a PRAM problem.

Just what is PRAM? And, if that is my Mac's problem, does it really involve such drastic surgery as completely replacing the motherboard (as the dealer told me)?

Steve Jones
Knoxville, TN

***Bob:*** PRAM is an acronym for *parameter random-access memory,* a small piece of memory that stores system-software settings even when your Mac is turned off. The first thing you should try is to clear out the PRAM by zapping it. To do this, open the battery compartment on the back of your Plus and remove the battery for 10 to 15 minutes (see Figure 2). Don't do this if you have a Mac that's still under warranty, because you'll void the warranty. This process resets all system-software settings to their defaults. Now reinsert the battery, boot up, and reset all your system-related parameters — mostly control panels such as General, Startup Device, Mouse, Keyboard, and so on. If this doesn't fix things, chances are that something more serious is wrong with your Mac.

***Andy:*** When all your control-panel settings start to go wonky, you've got PRAM trouble. Either the PRAM on your motherboard is bad, or no power is getting there. You've already ruled out a dead battery, so unless you see dirty contacts in the battery holder or a loose wire, it's probably something on the motherboard. All your Mac's components are hard-soldered in, so the only official fix is a motherboard swap.

### Backup to the Future

**Q.** Would you recommend backing up an internal hard drive onto an external hard drive? I have a 170-megabyte internal hard drive, and it's ridiculous to try to back up with floppies. SyQuest and Ricoh drives are too expensive to use just for backing up (I can get a decent external drive less expensively). Why should I want to invest in one of those when the new 128-megabyte optical discs are cheaper and more reliable and optical drives are beginning to approach the price of Ricoh and SyQuest drives?

Paul B. Macchia
Washington, DC

***Andy:*** First, to swipe a line from the hit flick *Wayne's World,* backing up to floppies is punishment for shoplifting in some countries. I won't insult your intelligence by suggesting that it's nonheinous by any definition of the term.

OK, sure, backing up to an

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external hard drive can be a nifty idea. Advantages: It's the fastest backup device available (no removable-cartridge drive is nearly as fast as a standard hard drive); a quality 120-megabyte external drive is about half the price of an 80-megabyte removable-cartridge system; and because all external drives mount as regular volumes with no extensions or incantations, they can be used as part of your regular system if you ever need on-line storage.

Now the hammer comes down. By using a hard drive, you're missing out on a lot of the flexibility a removable-cartridge system provides. Because the medium is not screwed or soldered in and can be replaced, tape drives and removable-cartridge systems have a big advantage over other types of drives. First and foremost, a hard drive allows you to make only one backup. Why would you want more than one backup? Well, you could have one for the office and another for your safe-deposit box. Better yet, you could keep each of the last four weeks' backups on different cartridges and back up every week onto the least recent backup cartridge. This gives you snapshots of your system as it existed during the past month. If you discovered a virus infecting your data, you could go back through your cartridges week by week until you found an untainted version.

Also, cartridge-backup systems let more than one person make backups. If you have a tape drive, for example, all the people in the office can have their own $15 DAT cassette and the drive can be moved around when backups and restores are needed. Finally, a cartridge drive can be used for infinite storage — buy a dozen cartridges and use four of 'em for backup and the rest for regular data. You can use one cartridge for UNIX, one for fonts, another for shareware programs, and on and on. When 120 megabytes of optical storage can cost about $60, you may never trash another file again!

As to the superiority of 3.5-inch optical systems, well, Paul, given your hometown, I'm tempted to make a crude joke regarding the thought processes folks in the Beltway put into monetary decision making. But the last time I did that, a government employee sent me a nasty letter on official letterhead, saying that no government employee ever wastes time or resources. So I won't.

The thing is, you're right on practically all counts; optical is the Wave of the Future. But there are still reasons for buying SyQuest and Bernoulli drives. They're about $600 less expensive than optical systems, and a 3.5-inch optical cartridge is practically useless if your office and your local service bureau use the older-style magnetic cartridges. But hey, those are just today's problems; all the highly paid pundits agree that optical drives will sell for less than $1,000 within a year, and because they use an interplatform industry standard (ha ha), they are destined to litter the nation at any moment now.

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# This Month on ZiffNet/Mac

## ZMAC UTILITY

This month's utility is not so much a system enhancement as it is an enhancement to the buying process. The *MacUser* MiniFinders stack puts all the product information covered in this issue — and more — just a mouse click away.

As popular as the MiniFinders are in print, it's sometimes a challenge to find a particular product when you're looking through the magazine. That's why *MacUser* also publishes a HyperCard version of its popular product database.

Unlike the paper version, the stack comes with a powerful search engine, written by HyperCard-scripting expert David Drucker. The Find command lets you search for any product according to its name, manufacturer or publisher, mouse rating, category, or any word that occurs in the description. For instance, you can search for all the database-management products with a rating greater than four mice. The stack also has an Import command for adding new MiniFinders as they are released and a Help card that explains navigation.

The MiniFinders stack is available exclusively on ZiffNet/Mac. Download the file MUMINI.SEA from Library 3 (Utilities) of the MacUser Forum (GO ZMC:MACUSER).

**By Ben Templin**

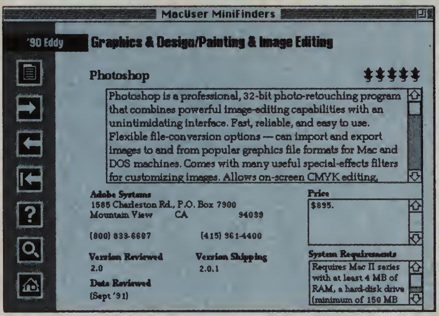
## More for Your Money

A new monthly $2.50 ZiffNet/Mac membership fee gives users unlimited access to several popular services. Users can now access the following areas without incurring CompuServe's usual $12.50 hourly rate for 2,400-bps access:

- MacUser Power Tools (GO ZMC:POWERTOOLS).
- MacUser/MacWEEK Index (GO ZMC:INDEX).
- MacWEEK News Beat and News Briefs (GO ZMC:NEWSMAC).
- Ziff Support Forum (GO ZMC:SUPPORT).
- ZiffNet/Mac Buyer's Guide (GO ZMC:GUIDE).
- ZiffNet/Mac Tech Support Database (GO ZMC:TIPS).

## Mewhinney Finders

The man behind *MacUser*'s MiniFinders, associate editor Bruce Mewhinney, will be on-line July 13 to 17 to answer everyone's questions about *MacUser*'s compendium of product information. If you have a question, opinion, or addition to the ever-evolving MiniFinders database, you can contact Bruce Mewhinney in the MacUser Forum (GO ZMC:MACUSER).



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Version Reviewed: 2.0
Version Shipping: 2.0.1
Date Reviewed: (Sept '91)

System Requirements: Requires Mac II series with at least 4 MB of RAM, a hard-disk drive (minimum of 150 MB

The *MacUser* MiniFinders stack presents the popular *MacUser* product database in an easy-to-search HyperCard stack.

## Hot New Files

Here's a sampling of the best new uploads in ZiffNet/Mac's Download & Support Forum (GO ZMC:DOWNTECH).

**Alias Director** (ADIREC.CPT) has features such as drag and drop and the ability to remove aliases for deleted files, making it easy to create, delete, and manage System 7 aliases. Shareware, $5.

**MICN** (MICN.CPT) is a clever system extension that displays the names of menus such as File, Edit, Font, Help, and Window as icons rather than names, which conserves menu-bar space. Freeware.

**OpenFolder 7** (OPENFO.CPT) displays a standard open-file dialog box you can use to navigate within any mounted volume and open any folder. If you dislike clicking through a hierarchy of folders and waiting for them to open, you'll find OpenFolder 7 useful. Freeware.

**Super Ruler** (SRULER.CPT) is a DA that displays a resizable horizontal or vertical ruler in any application. This older program works fine under System 7. Shareware, $10.

**TOMINIT II** (TMINIT.CPT) allows menus (including hierarchical menus) to be torn off in any application. Shareware, $20.

**TTConverter** (TTCONV.CPT) is a Mac utility that converts Windows 3.1 TrueType fonts into the Mac TrueType format or vice versa. Shareware, $10.

## Zmac Tip of the Month: Navigator

People who use Navigator to connect with ZiffNet/Mac have one of the best CompuServe interfaces, because it saves money. Navigator is an off-line interface that lets you set some options before going on-line. After you've connected to Zmac, Navigator collects messages, sends replies, and downloads files. You review messages off-line to avoid expensive connect-time charges. Navigator's greatest strength is also its greatest weakness, however. By automating all tasks, Navigator prevents you from easily using many of the interactive databases that comprise some of the free services on ZiffNet/Mac. Navigator does let users add manual tiles and create scripts for some of the databases. For a list of these scripts, download the file NAVZIF.TXT from Library 7 (Reference) of the Download & Support Forum (GO ZMC:DOWNTECH).

# PRODUCT INDEX

| ADVERTISER | PAGE |
|---|---|
| **Data Acquisition & Analysis** | |
| National Instruments 800-433-3488 | BG23 |
| **Database Management** | |
| Strategic Mapping Inc. 408-985-7400 | 177 |
| **Display Systems & Video** | |
| Aura Systems 800-365-AURA | 246 |
| E-Machines 800-344-7274 | 173 |
| Express Direct 800-535-3252 | 266-267 |
| Hardware that Fits 800-972-3018 | 186-191 |
| Lapis Technology 510-748-1600 | 175 |
| MacNews 800-243-9383 | 278-279 |
| Mirror Technologies 800-654-5294 | 196-198 |
| Mobius Technologies, Inc. 800-523-7933 | 7 |
| NEC Technologies 800-NEC-INFO | BG2-BG3 |
| RasterOps 800-SAY-COLOR | 221 |
| SuperMac 800-334-3005 | 22 |
| **Education** | |
| Educational Resources 800-624-2926 | 255 |
| MacAcademy 800-527-1914 | 86 |
| **General Hardware & Accessories** | |
| Hardware that Fits 800-972-3018 | 240-241 |
| Lind Electronic Design 612-927-6303 | 60 |
| Moustrak 800-221-6687 | 247 |
| Orange Micro 714-779-2772 | 16 |
| Outbound Systems, Inc. 800-444-4607 | 166-167 |
| **Graphics & Design** | |
| AGFA Div. - Type 800-424-TYPE | 180 |
| Aldus Corporation 206-628-2320 | 78-79 |
| Claris Corporation 800-3CLARIS | 71 |
| Deneba Software 305-594-6965 | 15 |
| Frame Technology 800-U4-FRAME ext. 857 | 82 |
| Image Club Graphics Inc. 800-661-9410 | 224 |
| Letraset 800-343-TYPE | 182 |
| Macromedia 415-442-0200 | 287-294 |
| Multi-Ad Services, Inc. 800-447-1950 ext. 354 | 234 |
| T/Maker 415-962-0195 | 204 |
| **Input Devices** | |
| Articulate Systems, Inc. 800-443-7077 | 19 |
| CoStar 800-4-COSTAR | 234 |
| Ken Hansen Imaging 212-673-7536 | 77 |
| **Mail Order** | |
| Advance Business Center 800-274-7747 | 305 |
| Bottom Line Distribution 900-420-3737 | 308-309 |
| CallSoft 800-777-5514 | 265 |
| Diskette Connection 800-654-4058 | 256 |
| Dr. Mac 800-825-6227 | 284-285 |
| First Source International 800-535-5892 | 254 |
| Hard Drives International 800-998-8024 | 303 |
| La Cie Limited 800-999-0143 | 257-264 |
| Mac Depot 800-222-2808 | 295 |
| Mac & More 800-945-1MAC | 306-307 |
| Mac Zone, The 800-248-0800 | 32-39 |
| Mac's Place 800-367-4222 | 268-275 |
| MacCenter 800-950-3726 | 298-299 |
| MacConnection 800-800-4444 | 62-69 |
| MacFRIENDS 800-331-1322 | 61, 193, 203 |
| MacLand 800-333-3353 | 300-301 |
| MacProducts, USA 800-622-3475 | 282-283 |
| MacSource 800-925-2622 | 302 |
| MacTel Technology 800-950-8411 | 256 |
| MacTown 800-338-4273 | 302 |
| MacWarehouse 800-255-6227 | 206-213 |
| Third Wave Computing 800-448-0404 | 296-297 |
| USA Flex 800-398-3539 | 280-281 |
| **Networking & Connectivity** | |
| Asante Technologies 800-662-9686 | 56-57 |
| Dayna 800-531-0600 | 200 |
| Farallon 800-998-7760 | Cover 4 |
| Focus 800-538-8866 | 20-21 |
| Insignia Solutions 800-848-7677 | 236 |
| Lotus 800-488-2500 | BG16-BG17 |
| **Organizational Tools** | |
| AEC Software 800-346-9413 | 6 |
| After Hours Software 818-780-2220 ext. 144 | 4 |
| ATTAIN Corporation 617-776-1110 | 75 |
| Chena Software 215-770-1210 | 73 |

| ADVERTISER | PAGE |
|---|---|
| Claris Corporation 800-3CLARIS | 17, 49 |
| Kaetron Software Corporation 713-890-3434 | 14 |
| Mainstay 818-991-6540 | 80 |
| Microsoft | Cover 2, page 1 |
| Pastel Development 212-941-7500 | 76 |
| White Crow Software 800-424-0310 | 195 |
| **Output Devices** | |
| GCC Technologies 800-422-7777 | 242 |
| Hardware that Fits 800-972-3018 | 50-51 |
| LaserMaster Corporation 800-950-6868 | 245 |
| MindGate Technologies, Inc. 800-MGT-6840 | 202 |
| NEC Technologies 800-NEC-INFO | 219 |
| NewGen Systems 800-756-0556 | BG49 |
| Printware, Inc. 800-456-1616 ext. 76 | 10 |
| QMS, Inc. 800-422-2769 | 26-27 |
| Tektronix 800-835-6100 Dept 21A | 31 |
| Texas Instruments 800-527-3500 | 184-185 |
| **Performance Enhancers** | |
| Applied Engineering 800-554-MACS ext. 555 | 5 |
| DayStar Digital 800-962-2077 | BG67 |
| Newer Technology 800-678-3726 | 30 |
| TechWorks 800-866-2785 | BG41 |
| **Programming & Systems** | |
| Serius Corporation 800-876-6847 | 238-239 |
| **Resources** | |
| CompuServe 800-848-8199 | 171 |
| Marketplace Info. Corp. 617-894-4100 | 24 |
| Safeware 800-848-3469 | 253 |
| **Scanners** | |
| AGFA Div. - Scanner 800-685-4271 | 40 |
| **Spreadsheets & Numerical Analysis** | |
| Lotus 800-TRADEUP | BG36-BG37 |
| Prescience Corporation 800-UC-R-MATH | 232 |
| **Storage Systems** | |
| APS Technologies 800-235-2750 | 214, 222, 310-311 |
| ClubMac 800-854-6227 | 276-277 |
| dgr Technologies, Inc. 800-235-9748 | 286 |
| Direct Tech 800-279-5520 | 253 |
| Essential Hardware 800-845-3043 | 254 |
| FWB Software 415-474-8055 | BG45 |
| KAO Information Systems 800-759-2590 | BG47 |
| Mass Microsystems 800-522-7979 | 84 |
| NEC Technologies 800-NEC-INFO | 8-9 |
| Panasonic 800-742-8086 | BG43 |
| PLI 800-288-8754 | BG68, Cover 3 |
| **Telecommunications** | |
| Supra Corporation 800-944-8772 | 44 |
| **Utilities** | |
| A & A Co., LTD 415-848-8040 | 256 |
| Aladdin Systems, Inc. 408-761-6200 | 83 |
| ALSoft, Inc. 713-353-4090 | 18 |
| Central Point Software 800-947-9443 | 230 |
| Connectix Corporation 800-950-5880 | 12 |
| Dantz Development Corp. 510-849-0293 | 220 |
| Fifth Generation Systems, Inc. 800-666-2904 | BG25, 178-179 |
| Insignia Solutions 800-848-7677 | 216 |
| Kent Marsh Ltd. 800-325-3587 | 72 |
| Maxa Corporation 800-788-6292 | 11 |
| Microcom, Inc. 919-490-1277 | 205 |
| Now Software 800-237-3611 | BG21 |
| Salient Software 415-321-5375 | 28 |
| Symantec 800-343-4714 ext. 754F | 235 |
| Symantec 800-343-4714 ext. 606G | 74 |
| Thought I Could 212-673-9724 | 10 |
| **Word Processing** | |
| Claris Corporation 800-3CLARIS | 25 |
| ExperVision 800-732-3897 | BG27 |
| Nest Software 800-524-3315 | 70 |
| Nisus Software, Inc. 619-481-1477 ext. 54 | 194 |
| Prescience Corporation 800-UC-R-MATH | 233 |
| T/Maker 415-962-0195 | 85 |
| **General** | |
| America Online 800-827-6364 | 225-226 |
| Computer Friends, Inc. 800-547-3303 | 73 |

**BG** denotes 1992 MacUser Minifinders Buyer's Guide

# AD INDEX

**MacUser**

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| RS# | ADVERTISER | PAGE |
|---|---|---|
| 30 | A & A Co., Ltd. | **256** |
| 176 | Advance Business Center | **305** |
| 100 | AEC Software | **6** |
| N/A | After Hours Software | **4** |
| 194 | AGFA Div.-Scanner | **40** |
| N/A | AGFA Div.-Type | **180** |
| 183 | Aladdin Systems, Inc. | **83** |
| N/A | Aldus Corporation | **78-79** |
| 171 | ALSoft, Inc. | **18** |
| N/A | America Online | **225-226** |
| 72 | Applied Engineering | **5** |
| 148 | APS Technologies | **310-311** |
| 147 | APS Technologies | **214** |
| 146 | APS Technologies | **222** |
| 71 | Articulate Systems, Inc. | **19** |
| 81 | Asanté Technologies | **56-57** |
| 43 | ATTAIN Corporation | **75** |
| 110 | Aura Systems | **246** |
| N/A | Bottom Line Distribution | **308-309** |
| 236 | CallSoft | **265** |
| 155 | Central Point Software | **230** |
| 45 | Chena Software | **73** |
| N/A | Claris Corporation | **17** |
| N/A | Claris Corporation | **25** |
| N/A | Claris Corporation | **49** |
| N/A | Claris Corporation | **71** |
| 46 | Club Mac | **276-277** |
| 120 | CompuServe | **171** |
| 34 | Computer Friends, Inc. | **73** |
| 60 | Connectix Corporation | **12** |
| 88 | CoStar | **234** |
| 28 | Dantz Development Corp. | **220** |
| 133 | Dayna | **200** |
| 159 | Daystar Digital | **BG67** |
| 186 | Deneba Software | **15** |
| 242 | dgr Technologies, Inc. | **286** |
| 33 | Direct Tech | **253** |
| 122 | Diskette Connection | **256** |
| 39 | Dr. Mac | **284-285** |
| 151 | E-Machines | **173** |
| 112 | Educational Resources | **255** |
| 80 | Essential Hardware | **254** |
| 180 | ExperVision | **BG27** |
| 128 | Express Direct | **266-267** |
| 175 | Farallon | **Cover 4** |
| 107 | Fifth Generation Systems | **BG25** |
| 102 | Fifth Generation Systems | **178-179** |
| 64 | First Source International | **254** |
| 241 | Focus, Inc. | **20-21** |
| 126 | Frame Technology | **82** |
| 84 | FWB Software | **BG45** |
| 164 | GCC Technologies | **242** |
| N/A | Hard Drives International | **303** |
| 198 | Hardware That Fits | **50-51** |
| 199 | Hardware That Fits | **186-191** |
| 197 | Hardware That Fits | **240-241** |
| 89 | Image Club Graphics, Inc. | **224** |
| 153 | Insignia Solutions | **216** |
| 152 | Insignia Solutions | **236** |
| 98 | Kaetron Software Corp. | **14** |
| 121 | KAO Information Systems | **BG47** |
| 123 | Ken Hansen Imaging | **77** |
| 36 | Kent Marsh, Ltd. | **72** |
| N/A | La Cie Limited | **257-264** |
| 124 | Lapis Technology | **175** |
| 178 | LaserMaster Corporation | **245** |
| 190 | Letraset | **182** |
| 21 | Lind Electronic Design | **60** |
| N/A | Lotus | **BG16-17** |
| N/A | Lotus | **BG36-37** |
| 41 | Mac & More | **306-307** |
| 83 | MacAcademy | **86** |
| 1 | MacCenter | **298-299** |
| N/A | MacConnection | **62-69** |
| 53 | MacDepot | **295** |
| 54 | MacFRIENDS | **61** |
| 55 | MacFRIENDS | **193** |
| 56 | MacFRIENDS | **203** |
| 150 | MacLand | **300-301** |
| 47 | MacNews | **278-279** |
| 137 | MacProducts USA | **282-283** |
| N/A | Macromedia | **287-294** |
| 167 | Mac's Place | **268-275** |
| 48 | MacSource | **302** |
| 154 | MacTel Technology Corp. | **256** |
| 17 | MacTown | **302** |
| 156 | MacWarehouse | **206-213** |
| N/A | MacZone, The | **32-39** |
| 76 | Mainstay | **80** |
| N/A | MarketPlace Info. Corp. | **24** |
| 158 | Mass Microsystems | **84** |
| 239 | Maxa Corporation | **11** |
| 75 | Microcom, Inc. | **205** |
| N/A | Microsoft | **Cover 2, page 1** |
| 42 | MindGate Technologies, Inc. | **202** |
| 118 | Mirror Technologies | **196-198** |
| 174 | Mobius Technologies, Inc. | **7** |
| 127 | Moustrak | **247** |
| 24 | Multi-Ad Services, Inc. | **234** |
| 177 | National Instruments | **BG23** |
| 144 | NEC Technologies, Inc. | **8-9** |
| 143 | NEC Technologies, Inc. | **BG2-3** |
| 142 | NEC Technologies, Inc. | **219** |
| N/A | Nest Software | **70** |
| 38 | Newer Technology | **30** |
| 31 | NewGen Systems | **BG49** |
| 32 | NewGen Systems | **BG49** |
| N/A | Nisus Software, Inc. | **194** |
| 172 | Now Software | **BG21** |
| 35 | Orange Micro | **16** |
| 78 | Outbound Systems, Inc. | **166-167** |
| 130 | Panasonic | **BG43** |
| 82 | Pastel Development | **76** |
| 182 | PLI | **BG68** |
| 181 | PLI | **Cover 3** |
| 27 | Prescience Corporation | **232** |
| 26 | Prescience Corporation | **233** |
| 157 | Printware, Inc. | **10** |
| 50 | QMS, Inc. | **26-27** |
| N/A | RasterOps | **221** |
| 61 | Safeware | **253** |
| 125 | Salient Software | **28** |
| 115 | Serius Corporation | **238-239** |
| 187 | Strategic Mapping, Inc. | **177** |
| 170 | SuperMac | **22** |
| N/A | Supra Corporation | **44** |
| N/A | Symantec Corporation | **74** |
| N/A | Symantec Corporation | **235** |
| 87 | T/Maker | **85** |
| 86 | T/Maker | **204** |
| 105 | TechWorks | **BG41** |
| 40 | Tektronix | **31** |
| 173 | Texas Instruments | **184-185** |
| 101 | Third Wave Computing | **296-297** |
| 20 | Thought I Could | **10** |
| 240 | USA Flex | **280-281** |
| 58 | White Crow Software | **195** |

**BG** denotes 1992 MacUser MiniFinders Buyer's Guide

**MacUser** READER SERVICE CARD **FREE INFORMATION**

**Circle the numbers below corresponding to products featured in this issue's advertisements and Minifinders Buyer's Guide Section.**
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## PRODUCTS FEATURED IN ADVERTISEMENTS

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024
025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045 046 047 048
049 050 051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072
073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090 091 092 093 094 095 096
097 098 099 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120
121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144
145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168
169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192
193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216
217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240
241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264
265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288
289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312
313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336
337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360
361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384
385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408
409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432
433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456
457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480
481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504
505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528
529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552
553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576
577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600

## PRODUCTS FEATURED IN MINIFINDERS BUYER'S GUIDE SECTION

601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640
641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680
681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720
721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760
761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800
801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840
841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880
881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920
921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960
961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000
1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040
1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080
1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096 1097 1098 1099 1100 1101 1102 1103 1104 1105 1106 1107 1108 1109 1110 1111 1112 1113 1114 1115 1116 1117 1118 1119 1120
1121 1122 1123 1124 1125 1126 1127 1128 1129 1130 1131 1132 1133 1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1147 1148 1149 1150 1151 1152 1153 1154 1155 1156 1157 1158 1159 1160
1161 1162 1163 1164 1165 1166 1167 1168 1169 1170 1171 1172 1173 1174 1175 1176 1177 1178 1179 1180 1181 1182 1183 1184 1185 1186 1187 1188 1189 1190 1191 1192 1193 1194 1195 1196 1197 1198 1199 1200
1201 1202 1203 1204 1205 1206 1207 1208 1209 1210 1211 1212 1213 1214 1215 1216 1217 1218 1219 1220 1221 1222 1223 1224 1225 1226 1227 1228 1229 1230 1231 1232 1233 1234 1235 1236 1237 1238 1239 1240
1241 1242 1243 1244 1245 1246 1247 1248 1249 1250 1251 1252 1253 1254 1255 1256 1257 1258 1259 1260 1261 1262 1263 1264 1265 1266 1267 1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1278 1279 1280
1281 1282 1283 1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294 1295 1296 1297 1298 1299 1300 1301 1302 1303 1304 1305 1306 1307 1308 1309 1310 1311 1312 1313 1314 1315 1316 1317 1318 1319 1320
1321 1322 1323 1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344 1345 1346 1347 1348 1349 1350 1351 1352 1353 1354 1355 1356 1357 1358 1359 1360
1361 1362 1363 1364 1365 1366 1367 1368 1369 1370 1371 1372 1373 1374 1375 1376 1377 1378 1379 1380 1381 1382 1383 1384 1385 1386 1387 1388 1389 1390 1391 1392 1393 1394 1395 1396 1397 1398 1399 1400
1401 1402 1403 1404 1405 1406 1407 1408 1409 1410 1411 1412 1413 1414 1415 1416 1417 1418 1419 1420 1421 1422 1423 1424 1425 1426 1427 1428 1429 1430 1431 1432 1433 1434 1435 1436 1437 1438 1439 1440
1441 1442 1443 1444 1445 1446 1447 1448 1449 1450 1451 1452 1453 1454 1455 1456 1457 1458 1459 1460 1461 1462 1463 1464 1465 1466 1467 1468 1469 1470 1471 1472 1473 1474 1475 1476 1477 1478 1479 1480
1481 1482 1483 1484 1485 1486 1487 1488 1489 1490 1491 1492 1493 1494 1495 1496 1497 1498 1499 1500 1501 1502 1503 1504 1505 1506 1507 1508 1509 1510 1511 1512 1513 1514 1515 1516 1517 1518 1519 1520
1521 1522 1523 1524 1525 1526 1527 1528 1529 1530 1531 1532 1533 1534 1535 1536 1537 1538 1539 1540 1541 1542 1543 1544 1545 1546 1547 1548 1549 1550 1551 1552 1553 1554 1555 1556 1557 1558 1559 1560
1561 1562 1563 1564 1565 1566 1567 1568 1569 1570 1571 1572 1573 1574 1575 1576 1577 1578 1579 1580 1581 1582 1583 1584 1585 1586 1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600
1601

**Please answer questions below:**

**1. For how many micro computers do you buy products? (check one)** ☐ 01) 1-4 ☐ 02) 5-49 ☐ 03) 50+

**2. Your primary job function is: (check one)**
☐ 01) Administrative/General Management
☐ 02) MIS/DP, Communications Systems, Programming
☐ 03) Engineering/R&D
☐ 04) Finance/Accounting
☐ 05) Marketing/Sales
☐ 06) Computer Dealer/VAR

**3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)**

**4. Which of the following products have you bought in the last 6 months? (check all that apply)**

| SOFTWARE | Q3 | Q4 |
|---|---|---|
| Accounting | ☐ 01 | ☐ 01 |
| Spreadsheets/Financial Planners | ☐ 02 | ☐ 02 |
| Project Managers/Planners | ☐ 03 | ☐ 03 |
| Word Processors | ☐ 04 | ☐ 04 |
| Database Managers | ☐ 05 | ☐ 05 |
| Graphics/Presentation Software | ☐ 06 | ☐ 06 |
| Integrated Software | ☐ 07 | ☐ 07 |
| Communications | ☐ 08 | ☐ 08 |
| Utilities | ☐ 09 | ☐ 09 |

| HARDWARE | Q3 | Q4 |
|---|---|---|
| Modems | ☐ 10 | ☐ 10 |
| Scanners | ☐ 11 | ☐ 11 |
| Microcomputer | ☐ 12 | ☐ 12 |
| Printers/Plotters | ☐ 13 | ☐ 13 |
| Monitors/Displays | ☐ 14 | ☐ 14 |
| Storage | ☐ 15 | ☐ 15 |
| Add-in Boards | ☐ 16 | ☐ 16 |
| Networking | ☐ 17 | ☐ 17 |

**5. If so, what function do you serve in the buying process? (check all that apply)**
☐ 01) Initiation/ Determine Need
☐ 02) Selection of Brand and Model
☐ 03) Selection of Source
☐ 04) Authorization
☐ 05) Other

**6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)**
☐ 01) over $5 million
☐ 02) $1 - 5 million
☐ 03) $500,000 - $999,999
☐ 04) $100,000 - $499,999
☐ 05) $50,000 - $99,999
☐ 06) $10,000 - $49,999
☐ 07) under $10,000

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MU 8/92-3

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Company Name

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# MacUser READER SERVICE CARD FREE INFORMATION

**Circle the numbers below corresponding to products featured in this issue's advertisements and Minifinders Buyer's Guide Section. Manufacturers will mail product literature to you free of charge.**

**Void after November 30, 1992**

## PRODUCTS FEATURED IN ADVERTISEMENTS

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024
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## PRODUCTS FEATURED IN MINIFINDERS BUYER'S GUIDE SECTION

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1601

**Please answer questions below:**

**1. For how many micro computers do you buy products?**
**(check one)** ☐ 01) 1-4 ☐ 02) 5-49 ☐ 03) 50+

**2.Your primary job function is: (check one)**
☐ 01) Administrative/General Management
☐ 02) MIS/DP, Communications Systems, Programming
☐ 03) Engineering/R&D
☐ 04) Finance/Accounting
☐ 05) Marketing/Sales
☐ 06) Computer Dealer/VAR

**3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)**

**4. Which of the following products have you bought in thelast 6 months? (check all that apply)**

| SOFTWARE | Q3 | Q4 |
|---|---|---|
| Accounting | ☐ 01 | ☐ 01 |
| Spreadsheets/Financial Planners | ☐ 02 | ☐ 02 |
| Project Managers/Planners | ☐ 03 | ☐ 03 |
| Word Processors | ☐ 04 | ☐ 04 |
| Database Managers | ☐ 05 | ☐ 05 |
| Graphics/Presentation Software | ☐ 06 | ☐ 06 |
| Integrated Software | ☐ 07 | ☐ 07 |
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| Scanners | ☐ 11 | ☐ 11 |
| Microcomputer | ☐ 12 | ☐ 12 |
| Printers/Plotters | ☐ 13 | ☐ 13 |
| Monitors/Displays | ☐ 14 | ☐ 14 |
| Storage | ☐ 15 | ☐ 15 |
| Add-in Boards | ☐ 16 | ☐ 16 |
| Networking | ☐ 17 | ☐ 17 |

**5. If so, what function do you serve in the buying process? (check all that apply)**
☐ 01) Initiation/ Determine Need
☐ 02) Selection of Brand and Model
☐ 03) Selection of Source
☐ 04) Authorization
☐ 05) Other

**6. Over the next 12 months, how much will yourorganization spend on computer products or services? (check one)**
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☐ 02) $1 - 5 million
☐ 03) $500,000 - $999,999
☐ 04) $100,000 - $499,999
☐ 05) $50,000 - $99,999
☐ 06) $10,000 - $49,999
☐ 07) under $10,000

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For many of you, mail order is your primary means of purchasing Macintosh products and services. That's why MacUser has put together the following special section.

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|---|---|
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| $ 2,001-$ 5,000 | $ 69 |
| $ 5,001-$ 8,000 | $ 89 |
| $ 8,001-$11,000 | $109 |
| $11,001-$14,000 | $129 |

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|---|---|---|---|
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| 650 mb | Panasonic | $2420 | cart. $179 |
| 1000 mb | Panasonic | $2559 | cart. $199 |
| CD ROM | Panasonic | $529 | |

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|---|---|
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| 535mb Maxtor 12ms 2 yr. | $1199 |
| 760mb Micropolis 4ms 5 yr. | $1499 |
| 1200mb Digital 10ms 5 yr. | $1929 |
| 1530mb Micropolis 14ms 5 yr. | $2359 |
| 2000mb Micropolis 14ms 5 yr. | $3299 |
| 2600mb Digital 12ms 5 yr. | $3399 |

| | |
|---|---|
| 52mb Quantum 12ms 2 yr | 219/299 |
| 80mb Conner 17ms 1 yr. | 265/339 |
| 80mb Maxtor 17ms 2 yr. | 289/359 |
| 105mb Quantum 10ms 2 yr. | 339/419 |
| 120mb Quantum 10ms 2 yr. | 399/469 |
| 120mb Maxtor 15ms 2 yr. | 344/409 |
| 170mb Conner 16ms 1 yr. | 410/480 |
| 210mb Conner 16ms 1 yr. | 554/624 |
| 210mb Maxtor 15ms 2 yr. | 584/654 |
| 240mb Quantum 10ms 2 yr | 659/759 |

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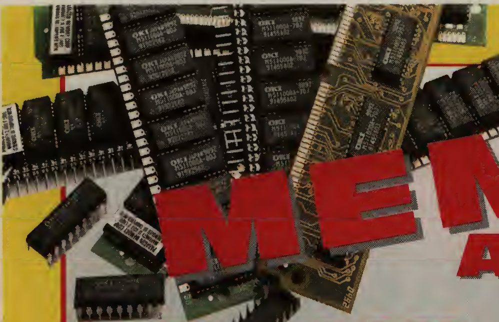

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| 1x8-80 | 2x8-80 | 4x8-80 |
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### PowerBook

| | | |
|---|---|---|
| PowerBook 100, 140 and 170 | | |
| 2MB | M1032LL-A | $149 |
| PowerBook 100 | | |
| 4MB | M1033LL-A | $279 |
| 6MB | PN N/A | $369 |
| PowerBook 140 and 170 | | |
| 4MB | M1033LL-A | $269 |
| 6MB | PN N/A | $349 |

### II Series

| | | |
|---|---|---|
| II, IIx, Plus, SE | | |
| 2MB Kit | M0219 | $65 |
| IIci, IIsi | | |
| 8MB Kit | M0513LL-A | $260 |
| II, IIci, IIcx, IIsi, IIx, SE/30 | | |
| 4MB Kit | M0292LL-A | $130 |
| IIci, IIsi, SE/30 | | |
| 16MB Kit | PN N/A | $449 |
| IIci, IIsi, IIcx | | |
| 32MB Kit | PN N/A | $1179 |
| 64MB Kit | PN N/A | $2299 |
| IIfx | | |
| 4MB Kit | M0376LL-A | $140 |
| 16MB Kit | PN N/A | $460 |
| 64MB Kit | PN N/A | $2639 |

### Quadra

| | | |
|---|---|---|
| Quadra 700 and 900 | | |
| 512K Video Ram | M5951LL-A | $85 |
| 4MB Kit | M0292LL-A | $129 |
| 16MB Kit | PN N/A | $449 |
| 32MB Kit | PN N/A | $1179 |
| Quadra 700 | | |
| 64MB Kit | PN N/A | $2569 |
| Quadra 900 | | |
| 64MB Kit | PN N/A | $2299 |

### Classic and LC

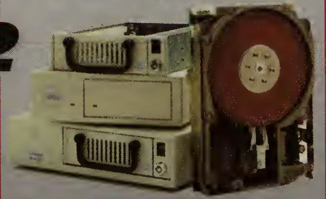
| | | |
|---|---|---|
| Classic | | |
| 1MB Card | M6361LL-A | $75 |
| Classis, Classic II and LC | | |
| 2MB Kit | M0219 | $65 |
| Classic II, LC and LCII | | |
| 4MB Kit | PN N/A | $130 |
| 8MB Kit | PN N/A | $225 |
| LC | | |
| 512K Video Ram | M0517LL-A | $59 |

### Portable

| | | |
|---|---|---|
| Portable (New Version) | | |
| 3MB | PN N/A | $329 |
| 4MB | PN N/A | $419 |

MCU08

Kingston TECHNOLOGY CORPORATION



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3 1/2 15MS SCSI Disk, Includes Compact Chssis, Cables and Drivers! Plug and Play with a Kingston Storage Upgrade!

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|---|---|
| 113MB | $989 |
| 159MB | $1069 |
| 340MB | $1799 |
| 426MB | $1939 |
| Stell SCSI External Chassis with two 3 1/2 or 5 1/4 half Height and terminator. | $419 |

### Laser Printers

| | | |
|---|---|---|
| Apple LaserWriter IIf and IIg | | |
| 4MB Kit | M0292LL-A | $130 |
| 16MB Kit | PN N/A | $449 |
| Apple LaserWriter NT | | |
| 8MB Kit | PN N/A | $225 |
| Apple LaserWriter II/NTX and NTX-J | | |
| 4MB Kit | M6006 | $140 |
| Texas Instruments MicroLaser and MicroLaser XL | | |
| 1MB | 2555739-0001 | $59 |
| QMS PS410 | | |
| 4MB | 2600090-901 | $299 |
| NEC 2 Model 90 | | |
| 2MB | 9502 | $199 |

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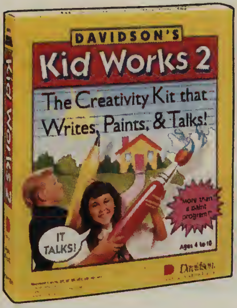

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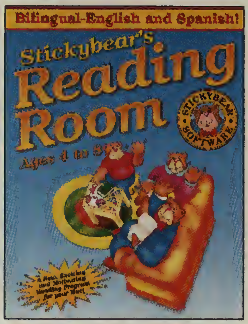

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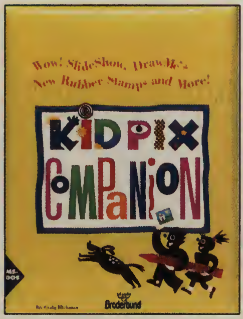

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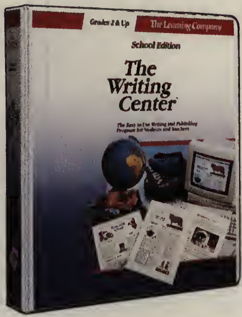

$94.25 School Version
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Home Version $54.25
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$44.25
English/Spanish
*CD-ROM*

### EXTRAS

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| VideoSpigot LC | $ 419.95 |
| VideoSpigot NuBus | 499.95 |
| MXE-2400A External Modem | 89.00 |
| Texas Instruments MicroLaser Plus PS/17 | 1245.95 |
| 60mb External Hard Drive | 399.95 |
| In Focus 1600LC Color PC Viewer | 1795.00 |
| Logitech ScanMaker 600GS | 849.95 |

### CD-ROM

| | |
|---|---|
| NEC CDR-36M CD-ROM Drive | $ 455.95 |
| NEC CDR-73M CD-ROM Drive | 699.95 |
| Just Grandma & Me | 34.95 |
| A Silly Noisy House | 45.95 |
| Discis 10-Pack Library | 424.95 |
| Grolier Electronic Encyclopedia | 239.95 |

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# 3M

Authorized Distributor Data Storage Products

| 3.5" DS | 3.5" HD |
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| 6.79 | 11.49 |

## *Data Cartridges*

*DC 2120.. 18.95*
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*Complete Line of 3M "CALL"*

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3.5" Double Side
**5.29**
3.5" High Density
**9.19**
*( 10 Diskettes per Box )*

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# DISKETTE CONNECTION

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MIDWEST
1–800–654–4058

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1–800–621–6221

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CIRCLE 122 ON READER SERVICE CARD.

---

# Yes, it's true!

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**Sweet JAM 7.0**
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**Features:**

- Direct input and output of Japanese characters within conventional application software using an English Mac OS.
- Compatible with System 7.0 and true-type fonts for clean and attractive results.
- Smooth access within the application software in use without requiring any switching.
- Can be used with an ordinary keyboard and can be turned off when not in use.

- In addition to educational applications, its ease and efficiency of use also make it superior for rapidly growing business applications.
- Has supported users in Japan for the past 7 years and presently boasts more than 20,000 users.

*(MA)* **Japanese Language Service Co.**
TEL: 617-338-2211 FAX: 617-338-4611

*(CA)* **Qualitas Tradings Co.**
TEL: 415-848-8080 FAX: 510-253-1047

**A&A CO., LTD.**
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Tokyo 171, Japan
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FAX: 81-3-5950-8135

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---

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| | |
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| • 1 Mb Index Gold™ FX/NTX, 70/80ns | $33 |
| • 2 Mb Index Gold™ SIMM, 70/80ns | $64 |
| • 3 Mb Index Gold™ Classic upgrade | $109 |
| • 4 Mb Index Gold™ SIMM, 70/80ns | $114 |
| • 4 Mb Index Gold™ FX, 70/80ns | $114 |
| • PowerBook 2 Mb (100) | $149 |
| • PowerBook 4 Mb (140,170) | $249 |
| • PowerBook 6 Mb (140,170) | $349 |
| • Mac LCII V-RAM Index Gold™ upgrade | $69 |
| • Quadra 256K V-RAM™ upgrade | $59 |
| • 8/24 V-RAM Index Gold™ upgrade NEW! | $69 |
| • Classic II Index Gold™ MathMate (68882) | $79 |
| • Mac LCII Index Gold™ MathMate NEW! | $79 |
| • Mac IIsi 030 Index Gold™ Direct Slot Interface (68882) | $99 |

*FREE! Benchmark software included with accelerators.*

# SLEEKER & SLICKER, INSIDE & OUT

## INDEX ECONOMY HARD DRIVES

Good driver/formatting software & 10 Mb shareware.

| Economy 3.5" Quantum: | Int'l | Ext'l |
|---|---|---|
| •52 Mb, 12 ms | $259 | $349 |
| •105 Mb, 12 ms | $389 | $449 |
| •240 Mb, 12 ms | $699 | $789 |
| •425 Mb, 12 ms | $1397 | $1489 |

## INDEX ELITE HARD DRIVES

Quantum mechanism with FWB Lite driver/formatting software, BRU Pro backup utility and 25 Mb shareware. *Only $40 more than our Economy drives.*

All Index drives come preformatted, support partitioning, password protection, and are A/UX and System 7 compatible. You get all necessary cables & brackets FREE.

*PLEASE SPECIFY TYPE OF MAC WHEN ORDERING!*

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CIRCLE 154 ON READER SERVICE CARD.

# We're proud of our reputation.

*"...I'm now taking the safer course of buying from corporate-owned companies such as Quantum-backed La Cie..."*
*MacWeek, February 1991*

*"Between the good sales support and tech support that go the extra mile, La Cie is tops in my book!"*
*Bill Ringle, Philadelphia, PA*

*"La Cie offers the leading combination of software and performance."*
*Macworld, March 1990*

## The La Cie tradition of pride.

Pride in our products. Pride in our commitment to customers. Pride in who we are. At La Cie, "pride" has fueled each and every step in our success. Since our very first product, La Cie has earned an unsurpassed reputation for excellence. Top-rated performance. Award-winning design. From our sleek mass storage solutions to our Silverlining software, no other company in our industry has earned greater acclaim. Or appreciated it more.

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Best Scanner!
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La Cie PocketDrive

## When size really counts.

As a Quantum Company, La Cie offers customers the advantages of $489 million in assets. Deep-pockets R&D. State-of-the-art technology. Superior value. And, the assurance of long-term support. Yet for all our size, La Cie's smallest achievements still make our biggest headlines.

## Introducing the PocketDrive.™ Portability in the palm of your hand.

Pack it in your pocket, purse or briefcase. La Cie's new 40MB and 80MB power-packed PocketDrives offer ounces of convenience, not pounds. Using Quantum's new 2 1/2" drive, the PocketDrive offers 19ms seek time, whisper-quiet operation and La Cie's exclusive switchable termination and SCSI ID.

La Cie 40MB PocketDrive

**$499**

## Desktop docking.

La Cie's PocketDrive eliminates the hassle of fumbling with cables at the back of your Macintosh every time you connect or disconnect the drive. Instead, the PocketDrive comes with a unique PocketDock™ desktop docking cable that lets you plug in the PocketDrive in seconds. With a second PocketDock (only $99), you can have fast and easy connection at work and at home. There's even a miniature T-connector (only $59) for connecting to other Macintosh systems.

## Pocket Silverlining and an extendible 2-Year warranty.

Every PocketDrive comes complete with one PocketDock, our award-winning Silverlining hard disk management software and our extendible 2-Year Limited Warranty. For only $1 per MB, you can enjoy 72-hour warranty service for up to 5 years.

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Best Hard Drive! (under 80MB)
**La Cie 1st Place!**
Best Hard Drive! (80-200MB)
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Best Hard Drive! (over 200MB)
**La Cie 1st Place!**
Best Scanner!
**La Cie 1st Place!**
Silverscanner!

La Cie Cirrus Optical Drive

## Set your sites on a Cirrus Optical™ magneto optical drive.

Introducing Cirrus Optical. La Cie's remarkable new 3 1/2" magneto optical drive that offers massive storage capacity, superb reliability and high-speed performance in a compact case.

## Space consciousness.

Smaller, faster and less expensive than conventional optical drives, La Cie's Cirrus Optical uses cartridges that are the same size as 3.5" floppies, but store eighty-eight times more data than high-density floppy disks. Engineered to fit within our space-saving, award-winning Cirrus case, the Cirrus Optical offers the relia–bility of optical media, 45ms seek times and the economy of removable cartridges.

La Cie Cirrus Optical Drive
**$1699**
with cartridge

## Lose Weight. Lose Wait.

Until now, optical technology had a reputation for being slow. Cirrus Optical drives at 45ms are faster than the conventional opticals. La Cie's Cirrus Optical leaves the others in the dust.

## Try one on for size.

When you need major-league performance in a pint-sized package, call us. We offer surprisingly small prices and a huge commitment to service and support.

> *"I'm now taking the safer course of buying from corporate-owned companies such as Quantum-backed La Cie..."*
> MacWeek

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# We're proud

## The drive to satisfy.

At La Cie customer satisfaction is the driving force behind everything we do. From our innovative product design to our capable, courteous customer support, La Cie goes the extra mile to assure you quality, service and value.

## La Cie award winning chassis. Quantum power under the hood.

Sleek. Streamlined. Easy handling. Economical. La Cie drives deliver the advantages of award-winning design and state-of-the-art technology. Inside and out. For high-speed performance you can depend on, all La Cie hard drives up to 400MB incorporate the world's most respected and most trusted drive mechanisms–Quantum!

La Cie hard drives from

**$239**

## Internals. Space savers. Portables.

La Cie offers customers a complete line of hard disk drives featuring state-of-the-art components, whisper-quiet half-speed fans, access times as low as 15ms, wide-range power supplies and La Cie's exclusive switchable termination and SCSI ID.

- 50MB-1.6GB Internal
- 50MB-1.6GB ZFP
- 50MB-400MB Cirrus
- 50MB-400MB Tsunami
- 50MB & 100MB Bacster™
- 40MB & 80MB PocketDrive

## Drive the La Cie Express.™

We love all our drives, but take a look at our newest arrival. La Cie's new ExpressDrive.™ Perfect for sensitive installations, the ExpressDrive is empowered with the performance of a Quantum fixed drive and the security and convenience of a removable drive, yet none of the risks of open-air media.

ExpressDrive from

**$Call**

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# of our drive.

Best Hard Drive! (under 80MB)
**La Cie 1st Place!**
Best Hard Drive! (80-200MB)
**La Cie 1st Place!**
Best Hard Drive! (over 200MB)
**La Cie 1st Place!**
Best Scanner!
**La Cie 1st Place!**
Silverscanner!

## Readable. Writable. Removable.

Economical, versatile, ideal for archival backup, La Cie's comprehensive line of removable media options includes:

- Removable cartridge drives
- 3 1/2" & 5 1/4" magneto opticals
- ExpressDrive
- CD ROM

## Every drive has a Silverlining.

Acclaimed the most powerful hard disk manager available, La Cie's Silverlining is included free with every hard drive!

## Tape backup with Retrospect.

Tape drives from

**$649**

Tucked neatly inside our Cirrus case, La Cie's 155MB or 600MB tape drives and 1.2GB or 2.0 GB DAT drives come with Retrospect software offering easy, economical data protection.

## Up to 5-year warranty.

Ask about our generous warranties. La Cie offers up to a 5-Year Limited Warranty on Quantum drives and a speedy 72 hour turnaround on all warranty service!

## Ready for a drive.

Don't let the quest for the right mass storage solution drive you wild. Call us. Our friendly, highly qualified staff will gladly help you select the perfect device to suit your needs and budget.

> *"Silverlining has bailed me out of so many tough situations, I've lost count."*
> *Bobker's Dozen Best, MacUser, December, 1990*

> *"La Cie hard disks are the most reliable and convenient disks I've ever had..."*
> *James J. Haf, Lansing, MI*

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**Read-It O.C.R. Pro**
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While supplies last!

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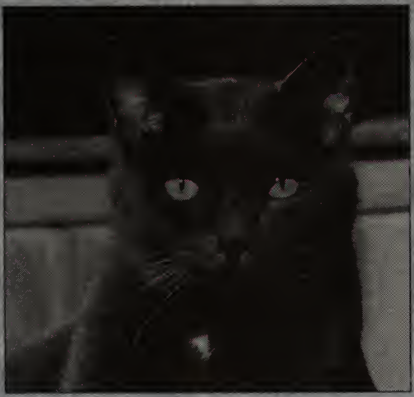
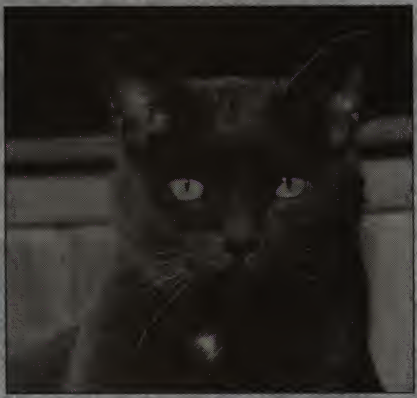
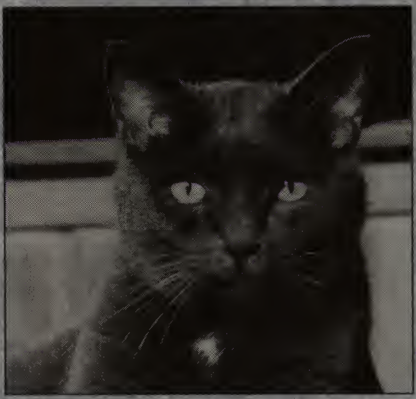
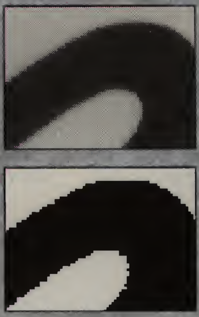
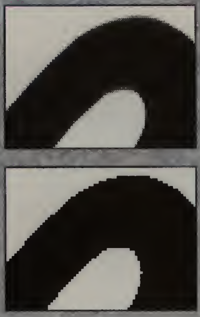

Microtek 600ZS $2,195*

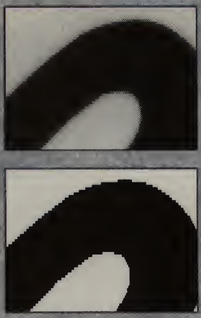

Howtek Scanmaster 3 $8195**

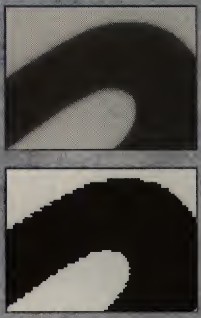

La Cie Silverscanner $1,399

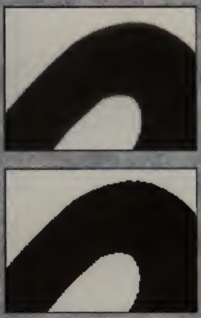
Microtek 600ZS
300 dpi at 1600%


Howtek Scanmaster 3
300 dpi at 1600%


La Cie Silverscanner
300 dpi at 1600%


Microtek 600ZS
600 dpi at 800%


Howtek Scanmaster 3
400 dpi at 1200%


La Cie Silverscanner
600 dpi at800%

## Image is everything.

We believe quality is a priority. Our image as a company that produces quality products is well known. We're so confident in the quality of our scanner image that we are willing to compare it to other scanners right here. Compare for yourself.

## Great color the first time.

Just look at the difference in the color scans. The single-pass Silverscanner has three separate noble gas-filled lamps for red, blue and green that are balanced so you get great scans the first time. With Silverscanner's built-in gamma correction, you get clean, bright scans with excellent detail in those hard-to-get areas that don't require difficult adjustment like other scanners. This can mean substantial time savings when every second counts.

## The shadow knows.

Do you want good shadow detail? Then compare the black and white scans. The Silverscanner can give you production quality gray-scale scans for magazines, newspapers and brochures.

## Lay it on the line.

When comparing line art, the Silverscanner really shines! At 1200 dpi you get what amounts to an ***electronic stat***. The comparison is incomplete, however, because some scanners don't have hi-res capability (too bad). But even if you compare at 400 or 600 dpi, it's clear how much better the Silverscanner is, especially bundled with Color It!

La Cie Silverscanner with Color It
**$1399**

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# of our image.

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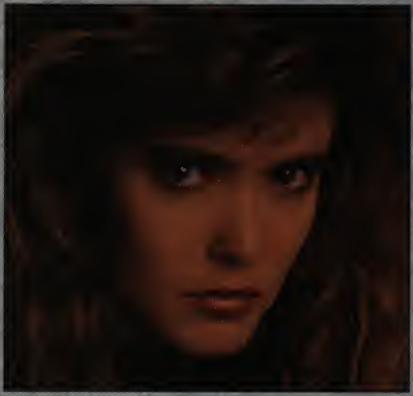
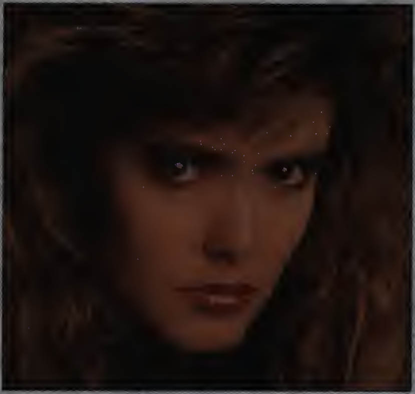
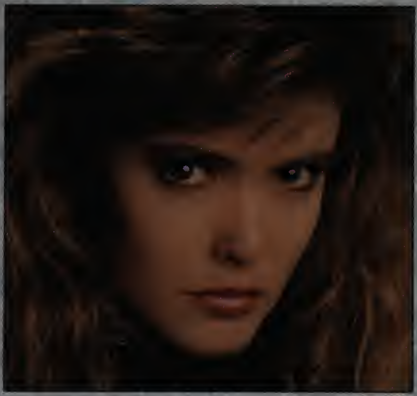
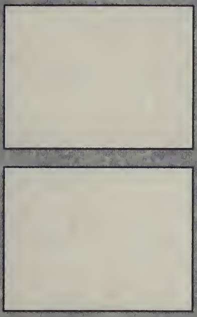
**La Cie 1st Place!**
**Silverscanner!**


Microtek 600ZS $2,195*

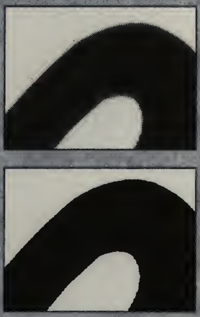

Howtek Scanmaster 3 $8195**


La Cie Silverscanner $1,399

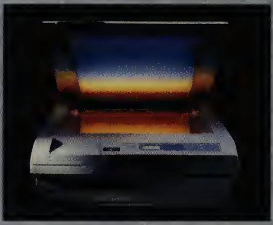
*All scans were done at default settings with no corrections. The color images were separated using Adobe Photoshop. The logo was scanned as grayscale and as line art. This entire ad was done on the Macintosh using Silverscanner, Photoshop, Quark XPress and a PostScript Imagesetter. The entire production cost was $145.*


Microtek 600ZS
1200 dpi at 400%—n/a

Howtek Scanmaster 3
1200 dpi at 400%—n/a


La Cie Silverscanner
**1200 dpi at 400%**

La Cie Silverscanner
**1200 dpi at 100%**



## Software to die for!

We're proud of our image when it comes to quality software, too. La Cie has always had a reputation for powerful, well-written software. La Cie's exclusive plug-in modules for Photoshop, ColorStudio, Digital Darkroom, Enhance, ImageStudio and RagTime have been hailed as some of the best software ever written for flat-bed scanners. Enjoy features like fast dynamic ***color*** previews, independent color/brightness controls, nine scan modes, savable scan settings, color dropout, magnified previews, proof scans, 25% to 400% scaling in 1% steps, and 25 dpi to 1200 dpi in 1 dpi steps.

Silverscanner is OCR and Apple System 7 compatible and can be purchased with full versions of Adobe Photoshop ***and*** Fractal Design's ColorStudio— a $2734 value for only $1899!

La Cie Silverscanner with Photoshop and ColorStudio

**$1899**

## Who ya gonna call?

La Cie offers you toll-free expert technical support. We know scanning inside and out. We can help you. And we'll be here for you tomorrow because La Cie is a Quantum Company.

## Seeing is believing.

La Cie is so proud of the Silverscanner, we used it to produce this ad. Not just the comparisons, ***everything.*** Call and order yours today.

*"The choice is clear . . . buy the La Cie Silverscanner."*
*Macworld, June 1991*

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To order or for more information, call toll-free
**800-999-0143**
6 a.m.-6 p.m.PST Mon.-Fri.
International 503-520-9000 Fax 503-520-9100

# We're proud of our value.

## 50MB Quantum ~~$299~~ $239*

## 120MB Quantum $499**

*Prices subject to change. Please call for lowest current prices and volume discounts.

**ZFP Quantum Magnum. PD120 Limited offer. While supplies last.

| | | |
|---|---|---|
| ★50MB | $239 ~~$299~~Int. | $319 ~~$339~~Ext. |
| ★100MB | $399 ~~$429~~Int. | $479Ext. |
| ★120MB | $479 ~~$529~~Int. | $559 ~~$579~~Ext. |
| ★240MB | $769Int. | $849Ext. |
| ★400MB | $1299 ~~$1399~~Int. | $1399 ~~$1499~~Ext. |
| ★1.2GB | $2009 ~~$2749~~Int. | $2099 ~~$2899~~Ext. |
| 80MB PocketDrive | | $649 |

| | |
|---|---|
| 155MB Tape Drive | $649 |
| 600MB Tape Drive | $999 ~~$1199~~ |
| 1.2-2.0GB DAT Drive | $1499 ~~$1799~~ |
| 128MB Cirrus Optical | $1599 ~~$1699~~ |
| ExpressDrive | $Call |
| ★Silverscanner | $1399 |
| Silverlining | $149 |

## Call for products not listed.

You'll be delighted at La Cie's competitive prices. Especially when you consider what you get absolutely free. Like our acclaimed Silverlining software. Five megabytes of public domain software. A 2-Year Limited Warranty on Quantum mechanisms (extendible to 5 years). 72-hour turn-around on warranty service. Prompt, courteous, competent service.

At La Cie, we take pride in the unsurpassed value we offer customers. From our state-of-the-art technology to our award-winning design, La Cie never stops working to bring you better products and services than ever before. And because we're a Quantum Company, you can be assured La Cie will continue to provide you service and support for years to come.

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**La Cie 1st Place!**
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Best Hard Drive! (over 200MB)
**La Cie 1st Place!**
Best Scanner!
**La Cie 1st Place!**
Silverscanner!

### Accounting

| | |
|---|---|
| Computer Assoc. Simply Accounting | 109 |
| Intuit Quicken v3.0 (Special) | 39 |
| Mecca Managing Your Money v4.0 | 95 |
| Teleware M.Y.O.B. v2.1 | 130 |

### Business Graphics

| | |
|---|---|
| 3G Graphics Images w/Impact (Special) | 59 |
| Adobe Illustrator v3.2 (w/ATM 2.0) | 349 |
| Adobe Streamline v2.0 | 115 |
| Aldus Freehand v3.1 | 369 |
| Aldus Superpaint v3.0 | 123 |
| Claris Mac Paint v2.0 (Special) | 79 |
| Claris MacDraw II v1.1 | 129 |
| Claris MacDraw Pro | 249 |
| Deneba Canvas v3.0 | 229 |
| Kaetron Flowcharting Express v1.0 | 85 |
| Kaetron Topdown Comp Upgrade | 129 |
| Ray Dream Jag v1.0 (Special) | 65 |
| Symantec More v3.1 | 235 |

### CAD

| | |
|---|---|
| American Small Bus Design CAD 2D/3D | 149 |
| Claris CAD 2.0 (Special) | 529 |
| Generic CAD for Mac | 319 |
| MacroMind Model Shop II | 499 |
| MacroMind Swivel 3D Professional | 389 |
| Strata Inc. StrataVISION 3D 2.0 | 569 |

### Communications

| | |
|---|---|
| Dataviz MacLink Plus Translator v6.0 | 103 |
| DaynaTalk for Mac (5 PK) | 359 |
| Freesoft White Knight (Special) | 79 |
| Hayes Smartcomm II Mac v3.3 | 80 |
| Microcom Carbon Copy for Mac v2.0 | 56 |
| Microsoft Mail 3.0 (server) | 239 |
| Prodigy Start Up Kit v2.1 | 25 |
| Sitka MacTops v3.1(Special) | 179 |
| Synergy Versaterm Pro v3.6 | 169 |

### Database

| | |
|---|---|
| Acius 4th Dimension v2.2 | 479 |
| AEC FastTrack Resource (Special) | 135 |
| After Hours TouchBASE v2.0 | 74 |
| Baseline Database v1.5 | 61 |
| Ceres Inspiration 3.0 | 149 |
| Claris FileMaker Pro (Special) | 189 |
| FoxBase + Mac v2.01 | 269 |
| Microsoft File v2.0 (Special) | 119 |
| Odesta Double Helix 3.5 | 399 |
| Proview Development Panaroma II v2.05 | 229 |

### Desktop Publishing

| | |
|---|---|
| Adobe Fonts #1 thru #230 (Special) | Call |
| Adobe Type Manager Plus Pack | 119 |
| Adobe Type Manager v2.03 | 58 |
| Adobe Type Reunion (Special) | 40 |
| Adobe TypeSet 1,2 or TypeAlign | 58 |
| Adobe TypeSet 3 | 119 |
| Aldus PageMaker v4.2 | 485 |
| Aldus Persuasion v2.1 | 299 |
| Altsys Eps Exchange v2.0 (Special) | 85 |
| Altsys Fontographer v3.5 | 249 |
| Atlsys Metamorphosis Pro 2.03 | 89 |
| Broderbund Printshop 1.3 | 33 |
| Casady & G Fluent Laser Fonts Lib v4.0 | 99 |
| Frame Framemaker v3.0 w/Med & Doc. | 539 |
| Microsoft PowerPoint v2.01 | 239 |
| Quark XPress 3.1 (Special) | 529 |
| TimeWorks Publish it Easy | 129 |

### Home/Recreational

| | |
|---|---|
| Broderbund Kid Pix v1.2 | 33 |
| Broderbund Playroom v2.0 | 27 |
| Broderbund Print Shop | 34 |
| Broderbund Sim City (Special) | 27 |
| Broderbund Where in the World | 27 |
| Broderbund Where in Time (Special) | 27 |
| Davidson & Asso. Algeblaster Plus | 33 |
| Elec Arts Mavis Beacon Teaches Typing | 33 |
| Great Wave Kidstime (Special) | 29 |
| Learning Co Talking Reader Rabbit v3.0 | 34 |
| Learning co. Supersolvers Outnumbered | 34 |
| Microsoft Flight Simulator v4.0 | 39 |
| Spectrum Holobyte Falcon v2.2 | 34 |
| Spectrum HoloByte Vette | 34 |
| Spectrum Tetris (Special) | 23 |

### Integrated

| | |
|---|---|
| Microsoft Office v2.0 (Special) | 459 |
| Microsoft Works w/Quicken CPN | 149 |
| Symantec Greatworks v2.0 | 189 |

### Multimedia

| | |
|---|---|
| Articulate Voice II w/Desktop Mike | 559 |
| Articulate Voice Impact Pro (Special) | 189 |
| Claris HyperCard 2.1 w/Quicktime Tool | 129 |
| Digital Vision Computrer Eyes B&W | 169 |
| MacRecorder Sound System 2.0 | 165 |
| MacRecorder Voice Digitizer | 95 |
| MacroMind 3-D (Special) | 929 |
| Macromind Director 3.0 | 629 |
| MacroMind Magic (Special) | 229 |
| Macromind Sound Edit Pro | 209 |
| MacroMind SwivelMan v1 | 529 |
| Micro Works ADD motion (Special) | 169 |
| Street Eectronics Echo LC Speech Synth | 89 |
| Warner Beethoven: String Quartet #14 | 42 |

### Spreadsheets

| | |
|---|---|
| Claris Resolve (Special) | 159 |
| Informix WingZ v1.1 | 239 |
| Lotus 1-2-3 (Special) | 319 |
| Lotus 1-2-3 Competative Upgrade | 89 |
| Microsoft Excel 4.0 Upgrade | 95 |
| Microsoft Exel 4.0 | 295 |

### Word Processing

| | |
|---|---|
| Calera WordScan 1.0 | 209 |
| Claris MacWrite II v1.1 | 85 |
| Microsoft Word 5.0 | 289 |
| Microsoft Word 5.0 Upgrade | 119 |
| Quesoft RightWriter | 54 |
| Reference Grammatik Mac v2.0 | 55 |
| Round Lake LetterWorks Pro | 59 |
| T/maker WriteNow v3.0 | 139 |
| WordPerfect 2.1 | 229 |

### Utilities

| | |
|---|---|
| Advanced Software QuickTools | 45 |
| Berkley More After Dark v1.0 | 23 |
| Berkley Sys. After Dark 2.0 (Special) | 27 |
| CE Software Calendar Maker v3.01 | 29 |
| CE Software QuicKeys v2.1 | 89 |
| Dantz Development DiskFit Pro v1.0 | 72 |
| Dayna Comm DOS Mounter v3.0 | 47 |
| FGS Disklock v2.1 | 119 |
| Fifth Generation File Director | 79 |
| Fifth Generation Pyro 4.0 (Special) | 25 |
| Icom on Cue II | 56 |
| Insight Development Mac Print v1.3 | 85 |
| Insignia Access PC v1.1 | 59 |
| Insignia Entry Level Soft PC v2.5 | 115 |
| Kent Marsh Guard Card SE | 99 |
| Kent Marsh GuardCard SE/30 | 99 |
| Microcom Virex v3.1 | 55 |
| Now Utilities 3.0.1 (Special) | 79 |
| Salient DiskDoubler 3.7 or AutoDoubler | 45 |
| Symantec Antivirus for Mac (SAM) v3.0 | 61 |
| Symantec Norton Utilities for Mac v1.1.2 | 85 |

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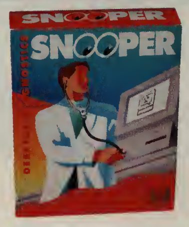

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| I/O Design MacLugage Ult Notebook EX | 69 |
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| I/O Design MacLuggage Ult Notebook SL | 59 |
| Kensington Apple Security System | 32 |
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| Kensington Mac Monitor/CPU Stand | 49 |
| Kensington Maccessories A-B Switch Box | 59 |
| Kensington Master Piece Remote | 105 |
| Kensington Master Stand | 52 |
| Kensington PassProof (Special) | 59 |
| Kensington SystemSaver Mac | 59 |
| Keytronic MacPro Plus Keyboard | 129 |
| T/Maker Power Bundle | 155 |

### MAC's

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|---|---|
| Macintosh Powerbook 100, 140, 170 | Call |
| Macintosh Classic,Classic II | Call |
| Macintosh LC | Call |
| Macintosh IIsi, IIci (Special) | Call |
| Macintosh IIfx | Call |
| Macintosh Quadra 700 (Special) | Call |
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### Displays & Video

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| E-Machine Color Page E16 (Special) | 1029 |
| E-Machine Color Page T16 (Special) | 1269 |
| Magnavox 9CM080 Monitor | 399 |
| Seiko CM 1445 14" Color Monitor | 549 |
| Sigma ColorMax 19" Trinitron Color | 2349 |
| SuperMac 19" Platinum Display (Grey Scale) | 899 |
| SuperMac 21" Supermatch 2 pg Color | 2599 |
| SuperMac Spectrum/8 Series III | 479 |
| SuperMac SuperMatch 19" Color | 1599 |

### Imput

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|---|---|
| Advanced Gravis ADB Mousestick | 59 |
| Datadesk Int 101E w/Quickeys 2 | 139 |
| Kensington Turbo Mouse ADB | 103 |
| Keytronics TrackPro | 218 |
| Kraft Sys KC3 Joystick (Special) | 18 |
| Logitech Mouseman (Right Handed) | 78 |
| Logitech Trackman | 87 |
| Mass Micro Data Cart. Formatted | 89 |
| Mouse Systems A3 Trackball (Special) | 73 |
| Orange Micro Grappler Plus | 89 |
| PLI Infinity Cart(Single) 44MB Unformatted | 85 |

### Networking

| | |
|---|---|
| 3COM Etherlink NB-TPX | 409 |
| Asante EN/SC (Special) | 279 |
| Asante Maccon 3 IIsi w/64K RAM | 219 |
| Asante Maccon II+ ET | 159 |
| Asante Maccon II+ ET 64 | 199 |
| Asante Maccon+ 301 Et | 179 |
| DataViz MacLink Plus/PC v6.0 | 117 |
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| Hayes V-Series Smartmodem 9600 | 479 |
| Kensington Master Piece Mac II | 105 |
| Lightning Scan Pro 256 | 499 |
| Practical Smartpack 2400 Modem | 209 |
| Practical Smartpack 9600 Modem | 529 |
| ProModem 24/96 fax modem | 278 |
| ProModem 2400 Mini External | 119 |
| PSI PowerModem (Special) | 189 |
| Software Ventures Microphone II v4.0 | 189 |
| Suprafax Modem Plus | 179 |

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|---|---|
| 3M DS HD 10 pack | 14 |
| Abaton Laser Script LX | 1499 |
| Apple Laserwriter IIC | Call |
| Apple Laserwriter IIF | Call |
| Caere Typist Plus Graphics (Special) | 429 |
| CoStar Address Writer Envelope Printer | 429 |
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| Quantum Pro Drive 105 SCSI LP 1" 9MS | 359 |
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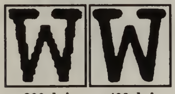

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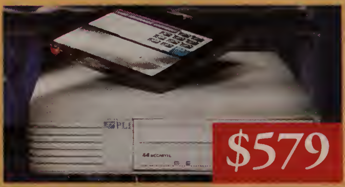

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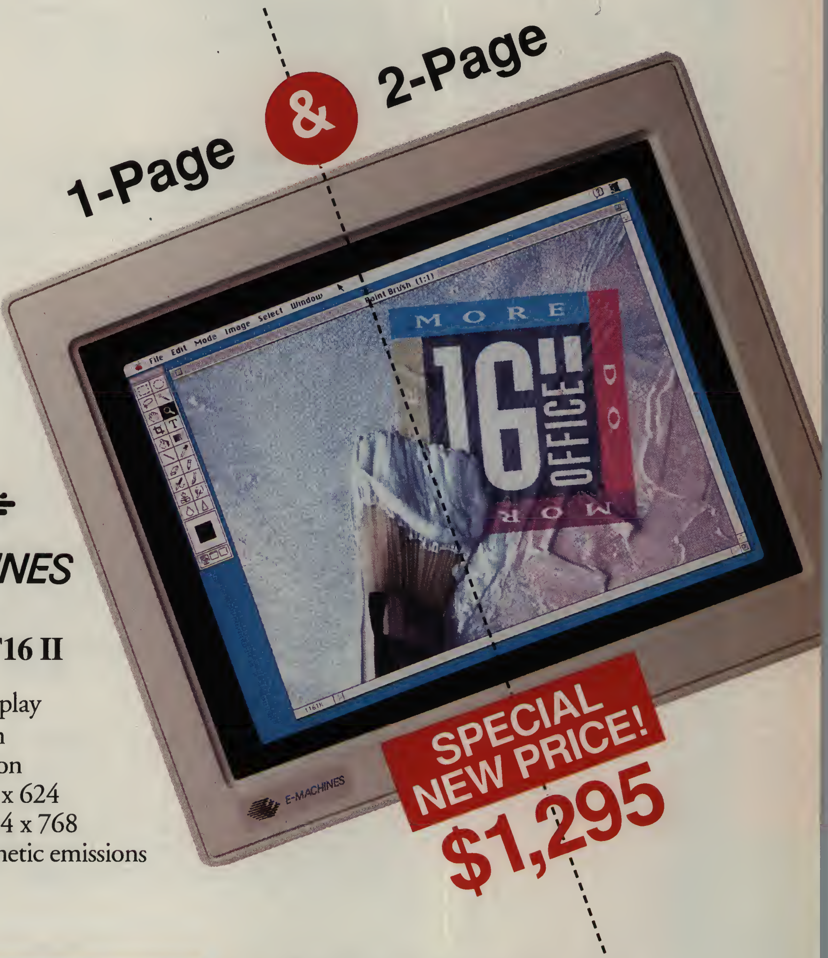

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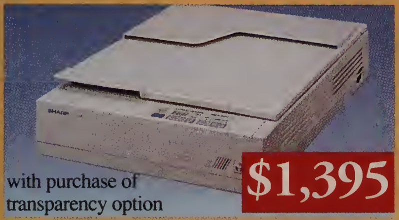

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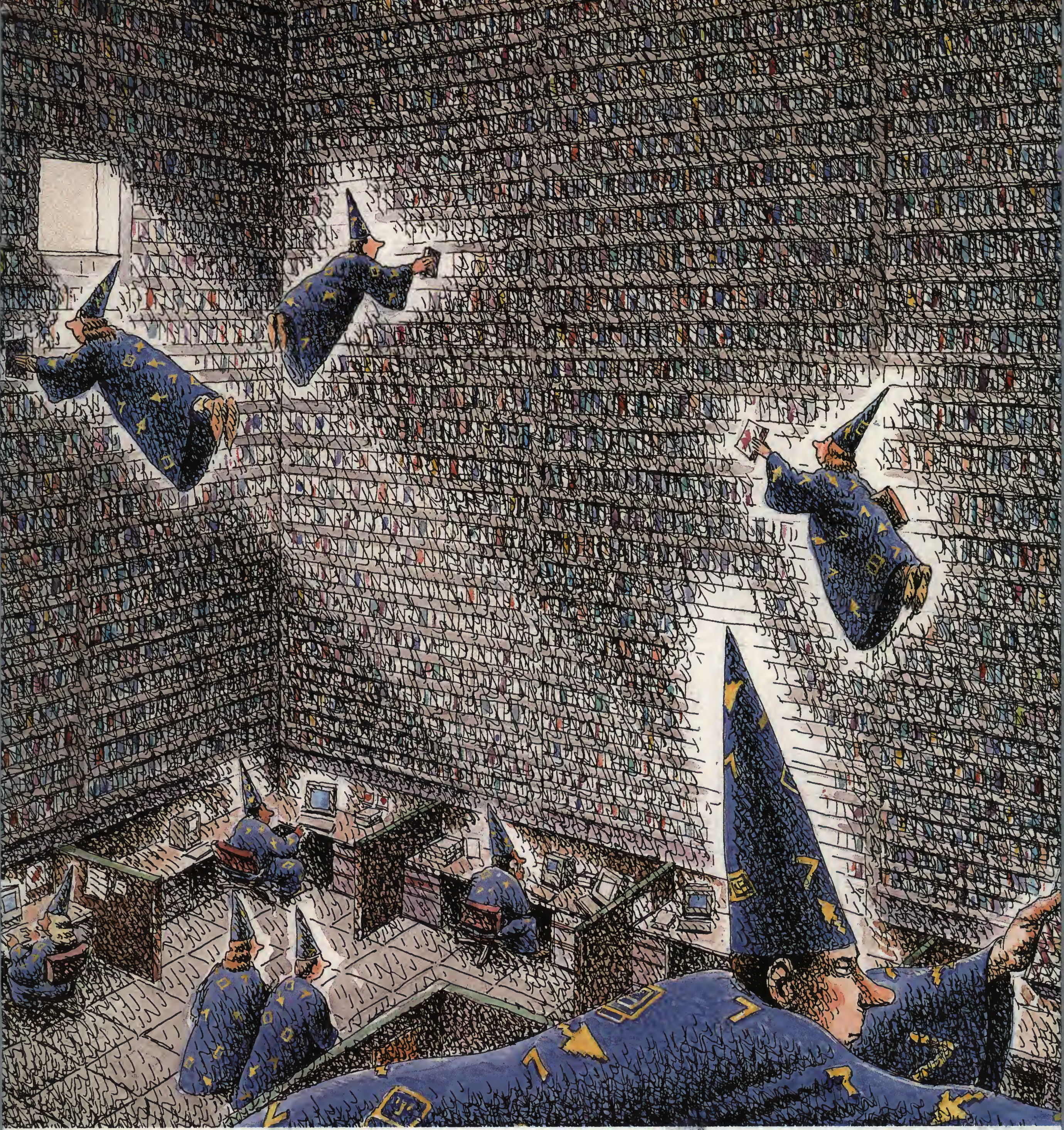

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❼ System 7 Compatible ⑦ System 7 Savvy ○ 30-60 Day Money Back Guarantee

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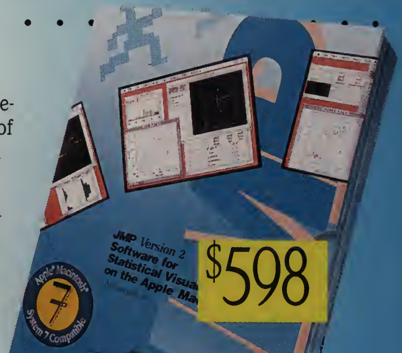
Retrieve It!
A text hunter's best friend.
Swiftly finds and displays any text you're looking for
$38

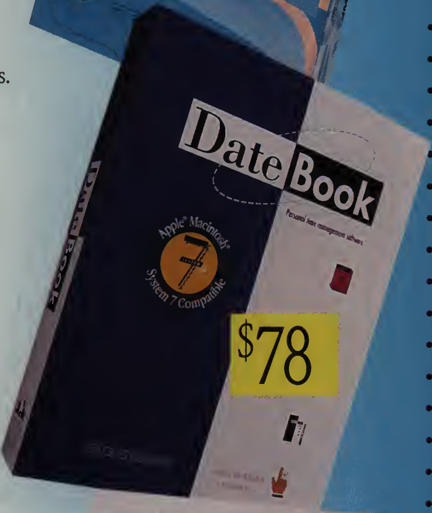

JMP Version 2
Software for Statistical Visualization on the Apple Macintosh
System 7 Compatible
$598

### Retreive It!

**MVP Software** ❼ Introducing Retrieve It!, the friendliest Mac text retriever ever. It quickly finds and displays any text anywhere on any of your hard drives, floppies, CD ROMs, or fileservers. Retrieve It! can search file names (extremely fast!) and it can search inside of files as well.

### JMP Version 2

**SAS Institute** ❼ 1991 MacWeek Target Award Winner. Visualize your data to discover meaningful patterns and outliers. 'JMP' to conclusions faster using statistics including ANOVA, regression, MANOVA, 2D and 3D Spin, control charts and more. With new **JMP Design, $258**, create classical and D-Optimal experimental designs and screens for significant effects and interactions.

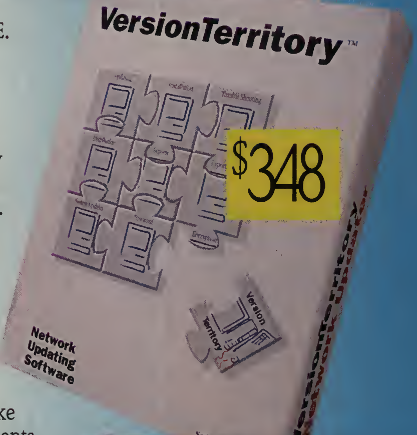


### Canvas 3.0

**Deneba** ❼○ Supports Publish and Subscribe, Balloon Help, TrueType and custom Apple events. Also offers professional text handling features like character-to-character font scaling, font conversion to Bezier curves and much more. Too many extras to list here. Also for $14 more get Canvas 3.0: The Book from Peachpit Press.

### DateBook

**After Hours Software** ❼ The ultimate personal time manager. Combines calendar, scheduling, alarms and To Do lists to keep track of your daily activities, plus integrates with your TouchBASE database to retrieve complete contact information. Automatically "post" the details of your meetings in DataBook and TouchBASE.



### FAXstf LAN

**STF Technologies** ❼ Provide every Mac on your AppleTalk network with the ability to send/receive faxes using almost any fax/data modem. Background send/receive operation up to 14,400 bps, broadcast capability and much more. FAXstf Universal (single user) $56 and LC (basic) $26 also available.

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Improving your environment is our business.
USER PAK WITH SERVER SOFTWARE FOR MACINTOSH, DOS AND WINDOWS
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### Timbuktu 4.0 (single user)

**Farallon** ❼○ Observe and share control of any other Mac on your network. So you can tutor new users or troubleshoot problems without leaving your Mac. Easy file transfer needs no server. A full range of security options lets you control user access levels. Timbuktu 4.0 (10-User) $678.

### QuickMail 2.5 (10-user)

**CE Software** ❼○ With over 350,000 users worldwide, QuickMail is the leading E-mail system for AppleTalk networks. Now offers the same power and ease of use to DOS, Windows, and OS/2 users in file server environments.

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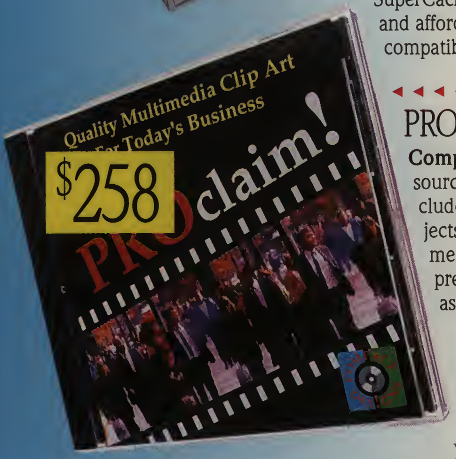
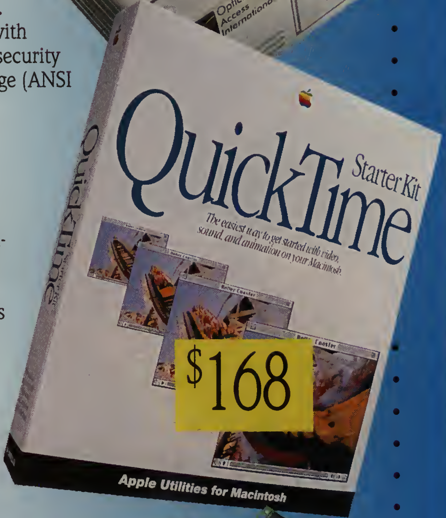
### Access RD/Aria™

**Optical Access Intl.** ❼○ 128 megabytes in your shirt pocket. This 3.5" optical drive is the cutting edge of technology, enhances with SuperCache software for lightning fast operation. The ultimate data security and affordability. Includes: cable, and removable 3.5" media cartridge (ANSI compatible).



### PROclaim!

**Compact Designs** ❼ QuickTime CD-ROM. Most complete source of quality multimedia images. Over 600-MB of images includes 250 video clips saved as 24-bit QuickTime movies. Subjects include: Business, Technology, Cities, People, Environment, Military, Space, and much more. Incls. features such as presentation animations and video animated phrases, as well as a user-friendly HyperCard visual directory.


QuickTime
Starter Kit
The easiest way to get started with video, sound, and animation on your Macintosh
$168
Apple Utilities for Macintosh

### QuickTime Starter Kit

**Apple Computer** ❼ Contains all the tools to help you get started with the innovative QuickTime software. With QuickTime installed on your Mac, you can work with dynamic information such as video and sound, as easily as you work with text and graphics.

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**DayStar Digital** ❼○ When you feel the need for speed, the award-winning PowerCache gives you the best combination of blazing-fast speeds (up to three times) and cost-effective prices. More important, it's guaranteed 100% compatible with all your software and hardware, while running at full speed.

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A SIMPLE EXPLANATION OF MEMORY AND HOW TO GET THE MOST FROM YOUR MACINTOSH
CONNECTIX
$35ea

### SIMMs/Mac Memory Book

**Mac's Place** ❼○ Expand the memory of your Mac! One Meg SIMM, 80 nanoseconds, only $35! Four Meg SIMM only $128! Also included, Connectix Macintosh Memory Guide, the complete guide for RAM configuration, expansion, tricks and traps. Call for PowerBook RAM prices.

### Bernoulli Transportable 90-MB PRO

**IOMEGA** ❼○ The best removable solution for your state-of-the art needs! System 7 and QuickTime require even greater storage demands, but now you simply insert another affordable 90-MB disk—180 with included compression, and you'll never fall short of disk space again.

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**Motion Works** ⑦ Easily create full color animations with multiple audio tracks, even if you can't draw. Interface follows traditional animation techniques such as cel based actors, onion skinning and path based motion. Other features include cel tweening and Print to Video. Export your animations to QuickTime™ or Berkeley Systems After Dark.

## DP + Hard Drives

**DataPlace** ❼○ Available only at Mac's Place! These quality Quantum hard drives and Syquest Removable Cartridge drives come with Alysis Software's More Disk Space, Central Points MacTools Deluxe and Nova's Kaboom! Special Edition. Each drive features a selectable SCSI ID switch, two 50 pin SCSI connectors, an external fuse and two AC Plug-ins.

## DiVA VideoShop

**DiVA** ⑦○ DiVA VideoShop is a fun, easy and powerful application for creating and editing QuickTime movies. Used with any QuickTime digitizing board, DiVA VideoShop's recording module lets you record video and audio clips directly onto your hard disk. For ease of editing, DiVA VideoShop uses micons (moving icons) to represent each clip. You can incorporate clip media from the Image Bank CD Collection of 300 movies, 70 music scores, and a sound effects library, all included in the box. *Special Bundles:*

**VideoShop and RasterOps 24STV.....$1172.**

**VideoShop and SuperMac Video Spigot NuBus.....$798.**

## Interactive Training - MacroMind Director

**Media In Motion** ❼ The comprehensive computer-based interactive course designed to help individuals learn MacroMind Director in just one session! Complete instruction on Director 3.0 and 3.1 including all key components, cast creation, scripting QuickTime™ and more. Save time and guarantee your proficiency in using Director.

## Director 3.1

**Macromedia** ⑦ New Version! The professionals choice for multimedia production is now the ultimate QuickTime authoring tool. Author, edit, playback and export interactive QuickTime movies with no additional hardware. Other features include expanded help, added functionality in the Score, a $195 Accelerator, and license free distribution of your multimedia productions.

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**Vision Software** ❼ New! Make a full-color movie of whatever's happening on your Mac screen with CameraMan! Records all screen activity in real-time to a QuickTime™ or PICS movie. Use your screen movies in multimedia, presentation, and QuickTime™ packages. Free movie player included!

## Audioshop

**Opcode Systems** ❼ Records and edits Macintosh audio and offers control of CD-ROMs. Fun to use and easy to understand, since the interface resembles a home CD player. Includes powerful editing features and even adds special effects like echo. Supports all popular Mac sound formats for easy integration with other programs.

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| **Articulate Systems** ○ | |
| ❼ Voice Navigator II | 548. |
| **CoStar Corporation** ○ | |
| ❼ Stingray Trackball | 88. |
| **DataDesk** ○ | |
| ❼ Mac 101E (All Macs) | 126. |
| **Fellowes Diskette Holders** | |
| Oak (Holds 45) | 19. |
| Oak (Holds 120) | 31. |
| **InCom** | |
| ❼ Compu-Case PowerBook Bag | 78. |
| **Kensington Microware** ○ | |
| ❼ 7' Long ADB Keyboard Cable | 24. |
| ❼ TurboMouse ADB | 107. |
| **Key Tronic** ○ | |
| ❼ Mac Pro Plus | 138. |
| **L B Innovators, Inc** ○ | |
| *Red,Charcoal or Navy Blue* | |
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| WristSaver Mouse Pad | 12. |
| **Mac's Place** | |
| 7 Outlet Noise/Surge | 15. |
| Mac's Place Speed Pad | 7. |
| **Sony** | |
| ❼ Double Sided 10 Pak | 9. |
| ❼ Double Sided-Bulk 50 Pak | 33. |
| ❼ High Density 10 Pak | 15. |
| ❼ High Density-Bulk 50 Pak. | 60. |
| ❼ DG 90 2gig DAT Tape | 22. |
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| ❼ PowerKey 2.0 w/QuickeKeys Lite | 75. |
| **Solidex** | |
| Performance Case-PB | 88. |

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| **AEC Management Systems** | |
| ❼ FastTrack Schedule 1.5 | 135. |
| **After Hours Software** | |
| ❼ TouchBASE | 79. |
| **Aldus** ○ | |
| ❼ Persuasion | 318. |
| **Apple Computer** | |
| ❼ System 7 Personal Upgrade | 98. |
| ❼ System 7 Group Upgrade | 278. |
| ❼ AppleShare Server | 1038. |
| ❼ AppleTalk Remote Access | 174. |
| ❼ Macintosh PC Exchange | 78. |
| **Ark Interface, Inc** ○ | |
| ❼ Workspace | 79. |
| **ASD Software** | |
| ❼ Active Memory Single User | 125. |
| ❼ Active Memory 5 User | 314. |
| ❼ WindoWatch 1 User | 88. |
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| ❼ In Control | 94. |
| **Bananafish Software** ○ | |
| ❼ ThoughtPattern | 94. |
| **Beagle Brothers Inc.** ○ | |
| ❼ BeagleWorks | 184. |
| ❼ Competitive Upgrade | 94. |
| **Calera** | |
| ❼ WordScan Plus | 378. |
| **Ceres Software** ○ | |
| ❼ Inspiration 3.0.1 | 158. |
| **CheckMark Software** ○ | |
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| ❼ MultiLedger 2.0 | 225. |
| ❼ Payroll | 174. |
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| ❼ Claris Works | 198. |
| ❼ FileMaker Pro | 208. |
| ❼ HyperCard V2.1 | 139. |
| ❼ MacProject II V2.5 | 348. |
| ❼ MacWrite II | 88. |
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| ❼ CompuServe Membership Kit | 25. |
| ❼ CompuServe Navigator | 49. |
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| ❼ Cricket Graph 1.2.3 | 84. |
| **DeltaPoint** ○ | |
| ❼ DeltaGraph Professional | 198. |
| **Diamante** | |
| ❼ Control Classic | 298. |
| **DiscTech Corp.** | |
| ❼ Facilitator | 218. |
| **Elefunt** | |
| ❼ RateFinder | 88. |
| **Freesoft Company** ○ | |
| ❼ White Knight V11 | 85. |
| **Insignia Solutions** | |
| ❼ AccessPC | 59. |
| *Soft PC* | |
| ❼ Entry Level V2.5 | 125. |
| ❼ Universal V2.5 | 194. |
| ❼ AT V2.5 | 298. |
| **Intuit** ○ | |
| ❼ Quicken 3.0 | 40. |
| **JIAN** | |
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| ❼ LivingTrustBuilder | 94. |
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| ❼ Lotus 1-2-3 | 338. |
| ❼ 1-2-3 Compet. Upgrade | 98. |
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| ❼ Micro Planner Manager | 378. |
| ❼ Micro Planner KeyPlan | 158. |
| **Microsoft** ○ | |
| ❼ Excel 4.0 | 295. |
| ❼ Office V2.0 | 478. |
| ❼ Word 5.0 | 298. |
| ❼ Works | 159. |
| **New Era Software** | |
| ❼ nuBASE Pro 1.5 | 248. |
| ❼ dBASE to Pro 1.5 Upgrade | 128. |
| **Nolo Press** ○ | |
| ❼ For The Record | 31. |
| ❼ Will Maker 4.0 | 35. |
| **Now Software** ○ | |
| ❼ Up to Date (1 User) | 64. |
| ❼ Up to Date (5 User) | 258. |
| **Paragon Concepts** | |
| ❼ Nisus | 245. |
| ❼ Nisus Compact | 98. |
| **Pastel Development** ○ | |
| ❼ DayMaker | 58. |
| **PC Globe** | |
| ❼ MacGlobe | 45. |
| ❼ MacUSA | 35. |
| **Portfolio Systems** | |
| ❼ DynoDex 2.0 | 69. |
| **Prescience** | |
| ❼ Expressionist | 77. |
| ❼ Theorist | 245. |
| **ProVUE** ○ | |
| ❼ Panorama II | 238. |
| **Reality Technology** ○ | |
| ❼ Wealth Builder | 94. |
| **SoftSync** ○ | |
| ❼ Accountant Inc. | 335. |
| ❼ Accountant Inc. Multi-User | 568. |
| **Software Ventures** ○ | |
| ❼ MicroPhone II V4.0 | 208. |
| **Spider Island Software** ○ | |
| ❼ TeleFinder Unlimited Ed. | 272. |
| **SuperOffice Corp.** ○ | |
| ❼ SuperOffice 1 User | 228. |
| **Survivor** ○ | |
| ❼ MacMoney | 58. |
| **Symantec** ○ | |
| ❼ GreatWorks 2.0. | 198. |
| ❼ More | 264. |
| **T/Maker** ○ | |
| ❼ PowerBundle | 158. |
| ❼ WriteNow 3.0 | 154. |
| **Teleware** ○ | |
| ❼ M.Y.O.B. | 139. |
| **Timeslips Corporation** ○ | |
| ❼ TimeSlips III V2.1 | 192. |
| ❼ Accounting Link (TAL) | 52. |
| **Westware** ○ | |
| ❼ Contact Ease V1.3 | 188. |
| **Wolfram Research Inc.** ○ | |
| ❼ Mathematica Standard 2.0 | 498. |
| ❼ Mathematica Enhanced 2.0 | 788. |
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| ❼ WordPerfect V2.1 | 278. |
| **WordStar** | |
| ❼ American Heritage Dict. | 55. |
| ❼ Correct Grammar | 55. |
| **Wyoming Software** ○ | |
| ❼ Business Sense 1.6 | 124. |

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| ❼ Premier | 328. |
| ❼ Streamline 2.0 | 117. |
| ❼ Type Manager | 59. |
| **Aldus** ○ | |
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| ❼ SuperPaint 3.0 | 128. |
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| ❼ Satellite 3D | 128. |
| **Claris** | |
| ❼ Claris CAD | 598. |
| ❼ MacDraw Pro | 278. |
| **Computer Associates** | |
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| ❼ PACo Producer 2.0 | 158. |
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| **Delta Tao Software** ○ | |
| ❼ Monet | 198. |
| **Fractal Design** ○ | |
| ❼ Painter 1.2 | 248. |
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| ❼ FrameMaker | 594. |
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| **Virtus** | |
| ❼ WalkThrough | 298. |

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| ❼ Just Grandma & Me | 35. |
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| **Discovery Systems** | |
| ❼ Berkeley BMUG PD ROM | 65. |
| ❼ Nautilus BackPac (1 or 2) | 44. |
| ❼ Nautilus Starter Disc. | 20. |
| **ICOM Simulations** | |
| ❼ Sher. Holmes Consult. Det. | 45. |
| **Optical Access** ○ | |
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| **PhotoDisc Inc.** ○ | |
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| ❼ Showplace/MacRenderMan | 448. |
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| ❼ CD-7 Super Library 2 Disk Set | 72. |
| ❼ Giga-ROM 2.0-Super Library | 98. |
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| ❼ Nigel's World | 36. |
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| ❼ The Playroom V2.0 | 29. |
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| ❼ Once Upon A Time-Vol. I-III ea. | 34. |
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| ❼ Reader Rabbit 1 V3.0 | 35. |
| ❼ The Writing Center | 50. |
| **MECC** ○ | |
| ❼ Number Munchers | 28. |
| ❼ Word Munchers | 28. |
| ❼ Oregon Trail | 28. |
| **Software Toolworks** | |
| ❼ Mavis Beacon Typing | 29. |

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| ❼ Lost Treasures of Infocom | 40. |
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| **Baseline Publishing** ○ | |
| ❼ Talking Moose | 22. |
| **Broderbund** | |
| Carmen San Diego? | |
| ❼ Europe, Time, U.S.A, World ea. | 29. |
| ❼ SimAnt | 35. |
| ❼ SimCity | 29. |
| ❼ SimCity Supreme | 47. |
| ❼ SimEarth | 40. |
| **Casady & Greene** ○ | |
| ❼ Glider | 29. |
| ❼ Mission Thunderbolt | 36. |
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| ❼ Strategic Conquest 3.0 | 35. |
| **DigiTek Software** | |
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| ❼ Tesserae | 31. |
| **Lucasfilm Games** | |
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| **MicroProse** | |
| ❼Railroad Tycoon | 40. |
| **Microsoft○** | |
| ❼Flight Simulator 4.0 | 39. |
| **Sierra On-Line** | |
| ❼Space Quest IV | 37. |
| **Software Heaven○** | |
| ❼OIDS | 25. |
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| ❼Full Metal Mac | 26. |
| **Spectrum Holobyte○** | |
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| ❼WordTris | 24. |
| **Strategic Simulations, Inc.** | |
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| ❼AD&D:Curse of Azure Bonds | 38. |
| **Strategic Studies Group** | |
| ❼American Civil War Vol 1or 2 | 30. |
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| ❼FastMath LC(68882 16Mhz) | 108. |
| ❼Plus Drive | 308. |
| ❼QuadraLink w/AE Shadow | 199. |
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| *TransWarp Accelerators* | |
| ❼CI 50Mhz w/FPU | 1578. |
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| ❼10T Hub/8 | 258. |
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| ❼MacCon3 IIsi | 248. |
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| ❼MacCon3 SE | 248. |
| ❼EN/SC | 328. |
| ❼EN/SC PowerBook | 368. |
| ❼EN/SC-10T | 258. |
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| **Caere** | |
| ❼Typist + Graphics | 468. |
| **Cayman Systems** | |
| ❼GatorBox | 1949. |
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| **Dayna Communications○** | |
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| ❼EtherPrint-T | 338. |
| ❼EtherPrint-T Plus | 598. |
| *DaynaPORT Ethernet Cards* | |
| ❼E/II | 148. |
| ❼E/II-T | 148. |
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| ❼E/si-TFP | 248. |
| ❼E/ZT (External) | 278. |
| **DayStar Digital○** | |
| ❼ComboCache IIsi | 248. |
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| ❼DualPort IIsi w/FPU | 168. |
| ❼Equalizer LC | 198. |
| ❼Equalizer LC w/FPU | 278. |
| ❼Fast Cache 040 | 358. |
| ❼PowerMath LC | 118. |
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| ❼DoubleColor LC | 395. |
| ❼Futura EX | 568. |
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| ❼Futura SX/8 | 698. |
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| *Ethernet-24-Bit Color* | |
| ❼ColorLink EX/T | 658. |
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| **Everex** | |
| ❼EMAC 150-MB Tape BU. | 678. |
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| Complete Line/Ethernet Cards | Call. |
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| *Performer* | |
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| ❼16 Mhz Accel.w/FPU | 318. |
| **Logicode** | |
| *Fax Modems-Send/Receive* | |
| ❼9624 | 148. |
| ❼9624 V.42bis | 198. |
| ❼9696 V.42bis | 398. |
| ❼14,400 V.42bis | 458. |
| *Quicktel Modems* | |
| ❼14,400 V.32bis,V.42bis,MNP5 | 418. |
| **Marstek Scanners** | |
| ❼M800 Mac-64 | 288. |
| ❼MacAngelo II-6000 | 1148. |
| **Micron○** | |
| ❼XCEED Gray-Scale 30 | 78. |
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| ❼TrueLaser Printer | 1398. |
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| ❼SIMM 4-MB 80ns | 128. |
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| **SuperMac○** | |
| ❼Monochrome Card | 358. |
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| *SuperMatch Color Monitors* | |
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| **Supra Corp.○** | |
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| *Supra Modem* | |
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| ❼MacPac 2400 | 138. |
| ❼MacPac 2400 w/MNP 5 | 198. |
| ❼Plus 2400 (MNP 5,V.42 BIS) | 158. |
| **Thunderware○** | |
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| **UMAX Technologies Inc.** | |
| ❼UC 630 | 1398. |
| **Wacom** | |
| *12X12 Digitizers Cordless Stylus* | |
| ❼Standard | 758. |
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| ❼DP+ 240-MB Quantum | 828. |
| ❼DP+ 425-MB Quantum | 1398. |
| *Internal Hard Drives* | |
| ❼DP+ 52-MB Quantum | 268. |
| ❼DP+ 105-MB Quantum | 398. |
| ❼DP+ 240-MB Quantum | 758. |
| ❼DP+ 425-MB Quantum | 1298. |
| *Removable Syquest Hard Drives* | |
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| ❼DP+ 88-MB w/cartridge | 698. |
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| ❼88-MB Cartridges | 107. |
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| ❼Hammer PB80 | 788. |
| ❼Hammer PB120 | 868. |
| *PocketHammer* | |
| ❼50-MB | 568. |
| ❼100-MB | 768. |
| ❼200-MB | 1198. |
| **Iomega○** | |
| *Bernoulli* | |
| ❼Transportable 90-MB Pro | 698. |
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| ❼Kit w/Retrospect | 98. |
| ❼Single 90-MB Cartridge | 139. |
| ❼Tri-Pack 90-MB | 418. |
| **Quantum Drives○** | |
| ❼ProDrive LPS 52-MB | 248. |
| ❼ProDrive LPS 105-MB | 378. |
| ❼ProDrive 240-MB | 738. |
| ❼ProDrive 425-MB | 1278. |
| **Seagate Technology○** | |
| *Full Height Drive* | |
| ❼WrenRunner II 676-MB | Call. |

# MUSIC

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| **Opcode Systems○** | |
| ❼Book Of MIDI | 28. |
| ❼EZ Music Starter Kit | 178. |
| ❼EZVision | 98. |
| ❼Galaxy Universal Librarian | 188. |
| ❼MIDI Translator | 42. |
| ❼Studio 3 MIDI/Smpte Intfc. | 288. |
| ❼Vision | 368. |
| **Passport Designs○** | |
| ❼MIDI Interface | 78. |
| **Software Toolworks** | |
| ❼Miracle (Piano Teacher) | Call. |

# PROGRAMMING

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| **Symantec○** | |
| ❼Just Enough Pascal | 51. |
| ❼THINK C 5.0 | 198. |
| ❼THINK Pascal 4.0 | 159. |
| ❼THINK Reference | 69. |
| **TGS Systems○** | |
| ❼Prograph V2.5 | 298. |
| **Userland Software** | |
| ❼Frontier 1.0 | 198 |
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| ❼ZBasic 5.0 | 95. |

# BOOKS

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| **Addison Wesley** | |
| Guide to Mac Family Hdw. | 21. |
| Mac C Prog. Vol 1 or 2 | 19. |
| Mac Pascal Prog. Vol 1 | 19. |
| Macintosh Program Secrets | 18. |
| Complete Book of HyperTalk 2 | 19. |
| ❼Learn C w/Thin C Lite | 28. |
| Mac Prog Guide MPW Vol 1 | 19. |
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| **BMUG Disk Catalog** | |
| BMUG Disk Catalog | 18. |
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| **Peachpit Press** | |
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| Little Mac Book, 2nd ed. | 12. |
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| Little QuicKeys Book | 12. |
| Little System 7 Book | 10. |
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| **Ventana Press** | |
| ❼System 7 Book w/Disk Set | 24. |
| ❼System 7 Companion Disks | 12 |

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| **Aladdin Systems○** | |
| ❼StuffIt Deluxe 2.0 | 59. |
| **Alsoft** | |
| ❼DiskExpress II | 55. |
| ❼MasterJuggler | 28. |
| ❼Power Utilities | 62 |
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| ❼More Disk Space | 48. |
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| **ASD Software○** | |
| ❼FileGuard 2.7 1 User | 129. |
| **Asanté○** | |
| ❼PersonToPerson 10-User | 262. |
| ❼PersonToPerson Zone Pack | 458. |
| **Berkeley Systems** | |
| ❼After Dark 2.0 | 28. |
| ❼More After Dark (M.A.D.) | 23. |
| ❼After Dark & M.A.D. Bundle | 39. |
| **Casady & Greene○** | |
| ❼Crash Barrier | 48. |
| **CE Software○** | |
| ❼Disktop 4.0 + Gofer & Util | 62. |
| ❼QuicKeys 2.1 | 89. |
| *QuickMail 2.5* | |
| ❼5 Users | 239. |
| ❼10 Users | 365. |
| **Connectix○** | |
| ❼HandOff II 2.2 | 55. |
| **Custom Applications** | |
| ❼Freedom of Press Lite | 58. |
| **Dantz Development○** | |
| ❼DiskFit Pro | 69. |
| ❼Retrospect | 145. |
| **Dayna Communications** | |
| ❼DOS Mounter V3.1 | 54. |
| **Farallon○** | |
| ❼Timbuktu 4.0 | 128. |
| ❼Timbuktu Remote 3.0 | 129. |
| **Fifth Generation○** | |
| ❼FastBack Plus | 118. |
| ❼Suitcase V2.0 | 49. |
| ❼SuperLaserSpool | 98. |
| **FWB Software** | |
| ❼Hard Disk ToolKit | 126. |
| **IBS○** | |
| ❼Data Club Classic 3 Pak | 179. |
| ❼Data Club Classic 10 Pak | 498. |
| ❼DataClub Elite | 938. |
| **Kent Marsh○** | |
| ❼FolderBolt | 69. |
| ❼NightWatch II | 89. |
| **Microcom○** | |
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| **MicroMat** | |
| ❼MacEKG 2.0 | 98. |
| **Now Software○** | |
| ❼Now Utilities V 3.0 | 83. |
| **Sabastian Software** | |
| ❼Image Grabber 3.0 | 35. |
| **Salient○** | |
| ❼AutoDoubler | 45. |
| ❼DiskDoubler | 45. |
| **Sound Source Unlimited** | |
| *SoundWare* | |
| ❼Star Trek Sounds Vol. 1 or 2 | 29. |
| **Symantec○** | |
| ❼Norton Utilities 2.0 | 99. |
| ❼S.A.M.III | 64. |
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| **Thought I Could** | |
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# Quantum

| Capacity | Model | Product Description | | Actual MAC Capacity | Internal | External |
|---|---|---|---|---|---|---|
| **52mb** | LPS50* | 3.5" Low Profile | 9ms | 49mb | **$215** | **$275** |
| **80mb** | | 2.5" Low Profile | 16ms | 80mb | **$429** | **$579** |
| **105mb** | LPS105* | 3.5" Low Profile | 9ms | 100mb | **$335** | **$395** |
| **120mb** | LPS120 | 3.5" Low Profile | 10ms | 116mb | **$409** | **$469** |
| **210mb** | PRO210 | 3.5" Half Height | 10ms | 199mb | **$599** | **$659** |
| **240mb** | LPS240 | 3.5" Low Profile | 10ms | 234mb | **$639** | **$699** |
| **425mb** | LPS240 | 3.5" Half Height | 8ms | 406mb | **$1059** | **$1119** |

***Quantum Drives** feature:*
- Ave. seek times of 25ms or less • MTBF of 100,000 - 250,000 hrs • **TWO Year Warranty**

**NOTE:** *3.5" Low Profile, Low Power drives (25ms) for Mac Classic, LC & IIsi. (Internal Drives: Add $10 for Quadra 900)

∆ ***Quantum's Go•Drive** features:*
- Fast, lightweight 2.5" form factor drive designed to meet the requirements of battery-powered notebook computers • MTBF of 150,000 hours • **ONE Year Warranty, ClubMac recommends installation by an authorized dealer to preserve warranty**

# FUJITSU

*Unbeatable Quality and Performance*

| Capacity | Model | Product Description | | Actual MAC Capacity | Internal | External |
|---|---|---|---|---|---|---|
| **330mb** | M2622SA | 3.5" Half Height | 9ms | 314mb | **$1079** | **$1139** |
| **425mb** | M2623SA | 3.5" Half Height | 9ms | 405mb | **$1049** | **$1109** |
| **520mb** | M2624SA | 3.5" Half Height | 9ms | 496mb | **$1199** | **$1259** |
| **645mb** | M2263 | 5.25" Full Height | 16ms | 640mb | **$1259** | **$1359** |
| **1.2GIG** | M2266 | 5.25" Full Height | 14.5ms | 1029mb | **$1899** | **$1999** |
| **2.0GIG** | M2652SA | 5.25" Full Height | 11ms | 1665mb | **$3195** | **$3295** |

***Fujitsu 3.5"** high performance SCSI disk drives features:*
- 10MB/s data transfer rate • 6.82 ms average latency • 240 KB read-ahead cache buffer

***Fujitsu 5.25"** high performance SCSI Winchesters disk drives features:*
- Embedded SCSI interface • As fast as 14.5 ms positioning time • Up to 4.8 MB/sec SCSI data transfer rate

Fujitsu drives include a **5 YEAR Warranty** † and the ClubMac Package.

# Seagate

| Capacity | Model | Product Description | | Actual MAC Capacity | Internal | External |
|---|---|---|---|---|---|---|
| **420mb** | ST1480N | 3.5" Half Height | | 406mb | **$1199** | **$1259** |
| **320mb** | ST4385N | 5.25" Full Height | W-Run | 315mb | **$1249*** | **$1349** |
| **645mb** | ST4767N | 5.25" Full Height | W-Run II | 634mb | **$1615*** | **$1715** |
| **645mb** | ST4766N | 5.25" Full Height | Wren-6 | 632mb | **$1285*** | **$1385** |
| **1.0GIG** | ST41200N | 5.25" Full Height | Wren-7 | 989mb | **$1819*** | **$1919** |
| **1.4GIG** | ST41650N | 5.25" Full Height | Wren-8 | 1350mb | **$2295*** | **$2395** |
| **1.4GIG** | ST41600N | 5.25" Full Height | Elite | 1307mb | **$2849*** | **$2949** |

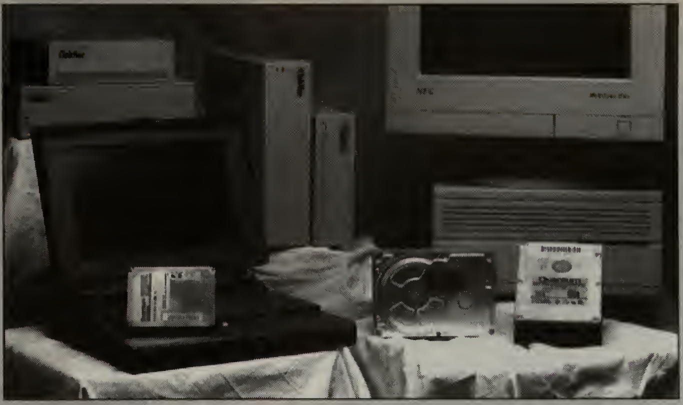
**Seagate Drives Include a ONE Year Warranty** and the ClubMac Package.
*Internal Full Height Drives fit the Mac II, IIx, IIfx, and Quadra 900 only. (Add $10 for Quadra 900 Bracket)

FEATURING
**SyQuest**®
**REMOVABLE TECHNOLOGY**

| | | | |
|---|---|---|---|
| **ClubMac 44mb** | SQ555 | Actual MAC Capacity: 42mb | **$429** |
| **ClubMac 88mb** | SQ5110 | Actual MAC Capacity: 84mb | **$575** |
| **ClubMac Dual 44mb** | | | **$799** |
| **ClubMac Dual 88mb** | | | **$1059** |
| **ClubMac Dual 44mb & 88mb*** | | | **$959** |
| **44mb Cartridge** | | | **$65** |
| **88mb Cartridge** | | | **$99** |

***SyQuest Drives** features:*
- SQ555 and SQ5110 are high-performance removable cartridge hard disk drives that provide 44mb/88mb of formatted data On-Line • Industry standard half-height 5.25" form factor • 20 ms average seek time
- Fully embedded SCSI controller • MTBF of 60,000 hours • SyQuest Drives carry a **TWO YEAR Warranty**
- SyQuest Cartridges carry a **ONE YEAR Warranty** • One cartridge & necessary cables
- ***SCSI* Director**™ v.2.1 Formatting Utility * Includes (1) 44mb & (1) 88mb cartridge

Visa & MC Accepted, No Surcharge • All Prices, specifications, features and system requirements subject to change without notice • Not responsible for typographical errors • All Hard drives carry a 30 day money back guarantee • Prices do not include freight • All specs are from the manufacturer.



# Maxtor®

| Capacity | Model | Product Description | | Actual MAC Capacity | Internal | External |
|---|---|---|---|---|---|---|
| **80mb** | 7080 | 3.5" Low Profile | 17ms | 80mb | **$289** | **$349** |
| **120mb** | 7120 | 3.5" Low Profile | 15ms | 121mb | **$349** | **$409** |
| **207mb** | LXT-213 | 3.5" Half Height | 15ms | 202mb | **$595** | **$655** |
| **330mb** | LXT-340 | 3.5" Half Height | 15ms | 324mb | **$969** | **$1029** |
| **535mb** | LXT-535 | 3.5" Half Height | 12ms | 510mb | **$1249** | **$1309** |
| **645mb** | XT-8760S | 5.25" Full Height | 16.5ms | 639mb | **$1389*** | **$1489** |
| **1.2GIG** | PO-12S | 5.25" Full Height | 13ms | 997mb | **$1849*** | **$1949** |
| **1.7GIG** | P1-17S | 5.25" Full Height | 13ms | 1433mb | **$2449*** | **$2549** |

- **Maxtor 3.5" Drives include a ONE Year Warranty** • **Maxtor 5.25" Drives include a TWO Year Warranty**
- Maxtor Drives include the ClubMac Package • Maxtor 80 and 120 are pérfect for the Mac Classic, LC and IIsi.

* Internal Full Height Drives fit the Mac II, IIx & Quadra 900 only (Add $10 for Quadra 900 Bracket)

# HEWLETT PACKARD

| Capacity | Model | Product Description | | Actual MAC Capacity | Internal | External |
|---|---|---|---|---|---|---|
| **234mb** | C2233 | 3.5" Half Height | 12.6ms | 223mb | **$749** | **$829** |
| **328mb** | C2234 | 3.5" Half Height | 12.6ms | 313mb | **$1089** | **$1189** |
| **422mb** | C2235 | 3.5" Half Height | 12.6ms | 402mb | **$1199** | **$1299** |
| **663mb** | 97548T/P | 5.25" Full Height | 16.5ms | 633mb | **$1409** | **$1509** |
| **1.0GIG** | 97558T/P | 5.25" Full Height | 13.5ms | 1020mb | **$1989** | **$2089** |
| **1.6GIG** | 97560T/P | 5.25" Full Height | 13.5ms | 1292mb | **$2439** | **$2539** |
| **HP 2.0GIG DAT Drive** (35470A) | | | | | | **$1389** |
| **HP Compression DAT Drive** (35480A) | | | | | | **$1819** |

**The HP disk drives** feature SCSI-2 **embedded controller**, MTBF of 150,000 hours. HP disk drives include a **5 YEAR Warranty**† and the ClubMac Package.

**The HP DAT drives** include a ONE Year Warranty, one 90m cartridge, and RETROSPECT (v.1.3) backup software. HP's own Data compression chip set allows increased capacity and improved compatibility with DDS standards.

# Tape Backup Systems

## *Bundled with RETROSPECT (v.1.3c)*

| | | |
|---|---|---|
| **Teac** MT-2ST/N 50 | 155mb | **$549** |
| **WangDAT** 1300XL | 2.0GIG | **$1329** |
| **WangDAT** 3200 DDS-DC | 3-5GIG | **$1549** |
| **Exabyte** 8200 | 2.2GIG | **$2049** |
| **Exabyte** 8500 | 5.0GIG | **$3329** |

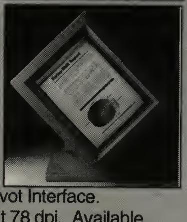
All ClubMac tape backup systems include a **ONE YEAR Warranty**, one cassette, RETROSPECT (v.1.3c) backup software, and all necessary cables.

Tech Support
(714) 768-1490
24 Hour FAX
(714) 768-9354
Info & International
(714) 768-8130

# ClubMac

**1-800-854-6227**
**3 Musick • Irvine, CA 92718**

## VIDEO GRAPHIC SOLUTIONS



**radus™**

**Color Pivot/LE Bundle**

**$1489**

This **ClubMac Bundle** combines the low cost, 15" Color Pivot/LE with Color Pivot Interface. Resolution of 624 X 832 pixel at 78 dpi. Available with NuBus, IIsi, LC, SE/30 or PowerView Interfaces.

| | |
|---|---|
| **Monitors** | |
| Color Display/21 | $3079 |
| PrecisionColor Display/20 | $2759 |
| PrecisionColor Display/19 | $2089 |
| Color Pivot | $1279 |
| Color Pivot/LE | $995 |
| Monochrome Pivot Display | $699 |
| Full Page Display | $579 |
| Two Page Display/19 | $899 |
| Two Page Display/21 | $1159 |
| **Video Boards** | |
| PrecisionColor 8, 8si Interface | $509 |
| PrecisionColor 8X, 8Xsi Interface | $749 |
| PrecisionColor 24X, 24Xsi Interface | $1659 |
| Color Pivot Interface (IIsi, II, LC, SE/30) | $509 |
| Monochrome Pivot Interface (II, LC, SE/30) | $249 |
| TPD Interface (IIsi, II, SE/30, SE) | $395 |
| PowerView | $499 |

***RasterOps***

| | |
|---|---|
| **Color Display Adapters** | |
| RasterOps 24XLi | $1929 |
| RasterOps PaintBoard 24 | $1539 |
| RasterOps PaintBoard Li | $829 |
| RasterOps 24Sx | $615 |
| RasterOps 8XLi | $925 |
| RasterOps 8XL | $459 |
| ColorBoard 264/SE30 | $685 |
| ClearVue/GSXL | $445 |
| **Multimedia** | |
| MediaTime | $1539 |
| RasterOps 24STV | $769 |
| RasterOps VideoTime | $1149 |
| RasterOps Video Expander II | $459 |
| **Monitors** | |
| 20" Trinitron | $2315 |
| 19" Color Hitachi | $1539 |
| ClearVue/SD 21 (with Cable) | $1389 |
| 21" Mono/Gray Scale | $999 |
| 19" Mono/Gray Scale | $769 |
| 16" Color Monitor | $1149 |

**SUPERMAC**
THE SUPERSOURCE FOR COLOR

Warranty Program
Graphic Cards • 5 Year
Graphic Displays • 3 Year

| | |
|---|---|
| **Graphic Displays** | |
| SuperMatch 20" Dual Mode Trinitron | $2469 |
| SuperMatch 20" Color | $1549 |
| SuperMatch 17" Multimode Color | $999 |
| 21" Platinum (Black and White) | $999 |
| 19" Platinum (black and White) | $939 |
| **Graphic Cards** | |
| Spectrum 24 Series III | $Call |
| Spectrum 8 • 24 PDQ / PDQ si | $979 |
| Spectrum 8 Series III | $559 |
| Monochrome Card | $339 |
| **Digital Video Boards** | |
| Video Spigot (NuBus / Mac IIsi or Mac LC) | $499 / 415 |
| Video Spigot Pro (NuBus / Mac IIsi) | $1335 / 1295 |
| Spigot and Sound | $749 |
| Spigot and Sound Pro | $1639 |

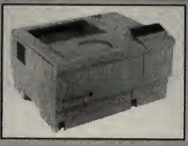
**NEC**

**MultiSync Monitors**

- Compatible with Mac LC, NuBus Family, Quadras
- Includes MAC Cable Adapter
- TWO Year Warranty

| | |
|---|---|
| MultiSync 3FGx (15") | $639 |
| MultiSync 4FG (15") with AccuColor | $759 |
| MultiSync 5FG (17") with AccuColor | $1359 |
| MultiSync 6FG (21") with AccuColor | $2799 |
| Mac FG 8X Interface Card | $719 |
| Mac FG 24X Interface Card | $1519 |
| CDR-74 CD-ROM Gallery Bundle | $695 |
| CDR-37 CD-ROM Gallery Bundle | $529 |

## PRINTERS



**NEC** Silentwriter Model 95

**$1398**

- Adobe PostScript Level 2
- 300 dpi • 6 ppm • 35 fonts • 2 MB RAM, up to 5 MB
- AppleTalk, Serial, Parallel Interface
- Automatic Interface Monitoring

**NEC Silentwriter2 Model 990** **$2449**

- RISC Based Processor • 300 dpi • 8 ppm • 35 fonts
- Automatic Language Switching • Adobe PostScript
- 2 MB RAM, up to 4 MB
- AppleTalk, Parallel, Serial Interface, PLUS Built-in SCSI Port

**Epson EPL-7500 Laser Printer** **$1995**

- True Adobe PostScript
- High-speed RISC processor
- 6 ppm • 300 dpi • 35 fonts • 2 MB RAM, up to 6 MB
- Parallel, Serial, AppleTalk Interface
- 250-sheet paper tray standard

**QMS -PS 410 Laser Printer** **$1495**

- Emulation Sensing Processor
- 4ppm • 300 dpi • 45 fonts • 2 MB RAM, up to 6MB
- AppleTalk, Serial, Parallel Interface

## ACCELERATION

**DAYSTAR**
DIGITAL

| | |
|---|---|
| **PowerCache** | |
| (Mac LC, SE/30, II, IIx, IIcx†, IIsi, IIci) | |
| 33 MHz PowerCache | $639* |
| 33 MHz PowerCache with 68882 math chip | $839* |
| 40 MHz PowerCache | $839* |
| 40 MHz PowerCache with 68882 math chip | $1069* |
| 50 MHz PowerCache | $1299* |
| 50 MHz PowerCache with 68882 math chip | $1579* |

†Some models of the IIcx do not provide a socket for the 68030, it is soldered Into the motherboard. Price includes socket installation on the IIcx motherboard by DayStar and return shipping UPS Blue.

• Price does not include Cache Adapter Card

| | |
|---|---|
| **Cache Cards** | |
| (IIsi model includes DualPort adapter) | |
| FastCache IIsi | $285 |
| FastCache IIsi with 68882 math chip | $349 |
| FastCache IIci | $255 |
| FastCache 040 (128K cache for Quadra700 & 900) | $345 |
| **Expansion Boards for The Mac LC and Mac IIsi** | |
| PowerMath LC | $109 |
| Equalizer LC (virtual memory upgrade) | $195 |
| Equalizer LC (includes 68882 math chip) | $259 |

**radus™**

| | |
|---|---|
| Radius Rocket 25i | $1219 |
| Radius Rocket | $1625 |
| Radius Rocket 33i | $2030 |

## NETWORKING

**ASANTÉ**

| | |
|---|---|
| **Mac LC Series Ethernet Cards** | |
| Thin/10BaseT | $195 |
| **Mac II Series Ethernet Cards** | |
| Thick/Thin, 16K or Thick/10BaseT, 16K | $159 |
| Thick/Thin, 64K or Thick/10BaseT, 64K | $209 |
| **Mac II Series, SI Ethernet Cards** | |
| Thick/Thin/10BaseT, 64K | $249 |
| **Mac Plus/Classic Ethernet Adapter** | |
| SCSI Ethernet Thick/Thin/10BaseT | $309 |
| **Other Mac Models Available! Call!** | |
| 10BaseT Hub with 12 Ports | $499 |
| 10BaseT Hub with 8 Ports | $249 |
| **Friendly Net Adapters** | |
| Quadra & LaserWriter IIg (Thin or 10BaseT) | $79 |

Tech Support (714) 768-1490
24 Hour FAX (714) 768-9354
Sales, Info & Int'l (714) 768-8130

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## SCANNERS

**MICROTEK**
**600ZS Color Scanner**
**$1299**

**NOW SHIPPING WITH**
Adobe Photoshop FULL Version

- Scans up to 600 dpi
- Three Scanning Passes
- 24-bit color/8-bit grayscale
- Incl. internal Apple SCSI Interface

**Epson ES-300C Color Scanner** **$1249**

- Scans up to 600 dpi
- Epson's TruePass Scanning System
- 24-bit color/8-bit grayscale/monochrome
- MAC, MS-DOS and NEXT Compatible
- NOW Shipping: Adobe Photoshop LE & Scantastic

**Sharp JX-320 Color Scanner** **$1449**

- Three Scanning Modes (Color-Grayscale-B/W)
- Scans up to 600 dpi • One-Pass Scanning
- Built-in Image Processing
- Selectable Interface (SCSI-2 or GBIP)
- NOW Shipping: Adobe Photoshop (FULL Version)

## MEMORY

| | |
|---|---|
| **PowerBook 100** | |
| 2MB Memory Module | $117 |
| 4MB Memory Module | $269 |
| 6MB Memory Module | $425 |
| **PowerBook 140/170** | |
| 2MB Memory Module | $117 |
| 4MB Memory Module | $195 |
| 6MB Memory Module | $275 |
| **Macintosh Memory** | |
| 1mb x 2 - 80ns (LC, LCII, IIsi, Classic II, Quadra 700 & 900) | $30 |
| 1mb x 8 - 80ns | $32 |
| 2mb x 8 - 80ns | $64 |
| 4mb x 8 - 80ns | $112 |
| 16mb x 8 - 80ns | $519 |
| **Mac IIfx Memory** | |
| 1mb x 8 - 80ns | $38 |
| 4mb x 8 - 80ns | $122 |
| 16mb x 8 - 80ns | $599 |
| **Quadra Memory** | |
| Low Profile 16mb | $589 |
| 256K VRAM | $29 |

## MISCELLANEOUS

| | |
|---|---|
| 3C 2400/9600 Baud Fax Modem | $189 |
| 3C 2400 Baud Modem<br>(includes software & cable) | $97 |
| DoveFax Desktop 24/96 Fax Modem | $239 |
| DoveFax Plus with Voice Mail | $325 |
| DoveFax Plus Int. NuBus with Voice Mail | $269 |
| EMAC 2400 Modem with MNP 5 | $145 |
| PSI PowerBook Int. Fax Modem 24/48R/965 | $205 |
| Applied Engineering<br>3.5" AEHD 1.44 External Floppy Disk Drive | $215 |
| Keytronic Mac Pro Keyboard | $125 |
| Sonnet CoProcessor Card | |
| LC / LC II / Classic 16 MHz | $75 |
| LC / LC II / Classic 20 MHz | $89 |
| PowerBook SCSI Cable | $35 |
| SCSI Cable (25/50 pin or 50/50 pin) | $10 |
| SCSI-2 Cable | $29 |

# ClubMac

**1-800-854-6227**
**3 Musick • Irvine, CA 92718**

# Monitors to

## RASTEROPS® DIRECT FACTORY RESELLER

### NEW COLOR TRINITRON

**RasterOps 20" Sony Trinitron Color Display**
*Dual Scan • 1152 x 870 • 81 dpi • 1024 x 768 • 72 dpi*
*No card needed with Quadra on-board video*

### NEW 16" COLOR

with purchase of MX card
**RasterOps Sweet 16**
*16" Color display • 824 x 632 • 72 dpi*

RASTEROPS

## Introducing New PaintBoard Li

**only $849**

**Accelerated 24-bit Color for 19" Displays**
On-board QuickDraw acceleration • Hardware pan and zoom allows for instant 2, 4 or 8x magnification and panning • Supports 13", 16" & 19"/20" displays

### RASTEROPS COLOR SYSTEMS

| | | |
|---|---|---|
| 16" | **Accelerated 24-bit Color System**<br>RasterOps 16" display with accelerated 24-bit card | $1,995 |
| 19" | **Accelerated 8-bit Color System**<br>RasterOps 19" display with accelerated 8-bit card | $2,095 |
| 19" | **Accelerated 24-bit Color System**<br>RasterOps 19" display with accelerated 24-bit card | $2,495 |
| 20" | **Accelerated 24-bit Color Trinitron System**<br>RasterOps 20" Trinitron with accelerated 24-bit card | $3,245 |

### NEW PaintBoard 24

24-bit board • QuickDraw acceleration • Supports 13" to 21" monitors

### COLOR BOARDS

| | |
|---|---|
| **8XL** 8-bit color | $455 |
| **8XLi** Accelerated 8-bit color | Call |
| **New ProColor 32**<br>Accelerated 32-bit color board • CYMK to RGB conversion • RISC interface | Call |
| **24STV**<br>24-bit live video for 13" | $795 |
| **24XLTV**<br>24-bit live video for large screens | $2,695 |

### 24XLi SPECIAL

24-bit board • QuickDraw acceleration • GWorld Ram expandable • Supports 13" to 21" monitors • **Quantities are limited**

# the Macs!

## LOW-COST DISPLAY SYSTEMS

### 14" TRINITRON

$379

**SONY**

With Accelerated 24-bit Color Card **$1,095**

### 17" COLOR

$895

**SAMPO**

With Accelerated 24-bit Color Card **$1,295**

### Mac cpu's

Let us custom configure a complete system for you. Some quantities are limited and publication deadlines don't always allow us to advertise our latest price. So call for latest details!

| | |
|---|---|
| **Mac Classic II**, 4/40 | $1,195 |
| **NEW Mac LC II**, 4/40 | Call |
| **Mac IIsi**, 3/40 | $1,945 |
| **Mac IIci**, 5/0 | Call |
| **Mac Quadra 700** 4/0 | $3,895 |
| **NEW Mac Quadra 950** | Call |

---

## Over 17,000 Mac Products Available!

### Printers

TEXAS INSTRUMENTS

| | |
|---|---|
| **TI microLaser Plus PS/17**<br>9ppm engine, 300 dpi, 17 PostScript fonts | $1,245 |
| **TI microLaser Plus PS/35**<br>9ppm engine, 300 dpi, 35 PostScript fonts | $1,565 |
| **TI microLaser TURBO**<br>9 ppm, PostScript level 2, 35 fonts | $1,995 |
| **TI microLaser TURBO XL**<br>16 ppm, PostScript level 2, 35 fonts | Call |

QMS

$1,495

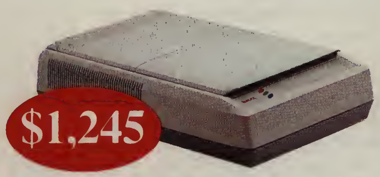
**QMS PS-410**

*300 dpi • 45 Fonts • 2MB RAM*

| | |
|---|---|
| **QMS PS-815 MR**<br>600 dpi, 45 Fonts, 6MB RAM | $3,895 |

### Scanners

UMAX



$1,245

**UMax UC630 Color Scanner**

*600 dpi • 24-bits • With Photoshop*

| | |
|---|---|
| **Umax 1200S Color Scanner**<br>1200 dpi, 30-bit color, with Photoshop 2.0 | Call |
| **Umax Transparency Option**<br>User-Installable for film transparencies & slides | $795 |

### Drives/Storage

PLI

| | |
|---|---|
| **PLI Infinity Floptical 21MB** | $499 |
| **PLI Infinity 44 Removable** | $559 |
| **PLI Infinity 88 Removable** | $799 |
| **PLI Quick SCSI** | Call |
| **PLI Infinity Optical 3.5"** | $1,599 |

### Complete Mac Systems

**LC II Color System $1,995**
Mac LC II, 4MB RAM/40HD, Sony 1320 14" Color Display, Apple Keyboard, Mouse, System 7, Norton Utilities & Hypercard

**IIsi Productivity System $2,695**
Mac IIsi 3MB/40HD, Lapis 15" Full-Page Display, MacPro Extended Keyboard, Mouse, System 7, Norton Utilities & Hypercard

**SONY**

$3,795

**IIci Color Graphics System**
Mac IIci 5MB/40HD, Sony 1304 14" Color Display, MacPro Extended Keyboard, Mouse, System 7, Norton Utilities & Hypercard

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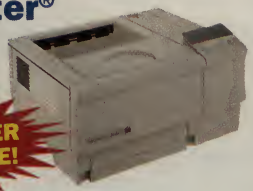
### NEC Silentwriter® Model 95



FREE TONER CARTRIDGE!

**$1399**

B1-NEC95
*LIST PRICE $1749*

- ***Free toner cartridge with purchase***
- 6 PPM PostScript® Level 2 and PCL 5
- AppleTalk/Parallel/Serial
- Automatic interface monitoring
- Automatic Emulation Switching
- Sharp Edge Technology
- 250 Sheets and built-in 15 envelope feeder
- Perfect for simultaneous shared use with Macintosh and IBM compatibles.

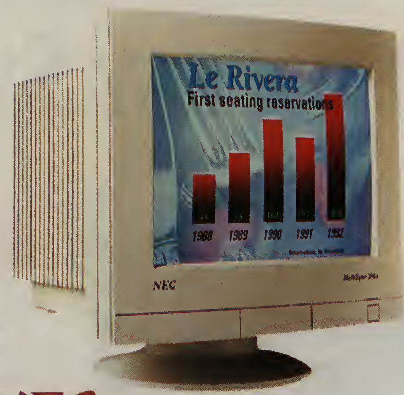
### NEC Colormate PS Model 40

**$4299**

B1-CMPS/40
*LIST PRICE $4799*

FREE COLOR RIBBON!

- ***Free color ribbon with purchase***
- Color thermal transfer printer
- Prints on paper and transparencies
- Adobe PostScript® interpreter
- 300 DPI
- AppleTalk interface standard



### NEC MultiSync® 4FG™ 15" Monitor

**$759**

D1-NEC4FG
*LIST PRICE $949*

- 1024 X 768 **Non-Interlaced** @ 60 Hz
- .28mm Trio dot pitch and tilt/swivel base
- 75 MHz max. video bandwidth
- FullScan™ capability for edge-to-edge images
- Exclusive AccuColor™ Control System for adjustment of on-screen color to suit individual preferences
- High-contrast, polished screen improves focus & enhances color vibrancy
- Reduced Magnetic Field™ technology
- Mac LC® II, Quadra compatible (with cable adapter)
- supports expanded, WYSIWYG and condensed viewing modes from 58 DPI to 93 DPI

### NEC MultiSync® 5FG™ 17" Monitor

**$1399**

D1-NEC5FG
*LIST PRICE $1699*

- 1280 x 1024 **Non-Interlaced** @ 60 Hz
- .28mm Trio dot pitch and tilt/swivel base
- 135 MHz max. video bandwidth
- FullScan™ capability for edge-to-edge images
- Exclusive AccuColor™ Control System
- High-contrast, polished screen surface
- Dual dynamic beam focus & Invar shadow mask
- Supports Apple 1152 X 870 dual page mode
- MPRII compliant
- Mac LC® II, Quadra compatible (with cable adapter)
- Supports expanded, WYSIWYG and condensed viewing modes from 58 DPI to 93 DPI

### NEC MultiSync® 6FGx™ 21" Monitor

**$2799**

D1-NEC6FG
*LIST PRICE $3499*

- 1280 x 1024 **Non-interlaced** @ 60 Hz
- .28mm Trio dot pitch and tilt/swivel base
- 135 MHz max. video bandwidth
- FullScan™ capability for edge-to-edge images
- Exclusive AccuColor™ Control System lets you match screen color to printed output
- High-contrast, polished screen surface
- Dual dynamic beam focus & Invar shadow mask
- Meets strict Swedish MPRII guidelines
- Mac® II, Quadra compatible (with cable adapter)
- Supports expanded, WYSIWYG and condensed viewing modes from 42 DPI to 72 DPI

### NEC MultiSync® 3FGx™ 15" Monitor

**$639**

D1-NEC3FGX
*LIST PRICE $799*

- 1024 X 768 **Non-interlaced** @ 60 Hz
- .28mm Trio dot pitch and tilt/swivel base
- 65 MHz max. video bandwidth
- FullScan™ capability for edge-to-edge images
- Polished, high-contrast screen improves focus & displays colors more vibrantly
- Invar shadow mask for increased brightness
- Reduced Magnetic Field™ technology
- Mac LC® II, Quadra compatible (with cable adapter)
- Supports expanded, WYSIWYG and condensed viewing modes from 58 DPI to 93 DPI

### NEC MacFG™ 8X/24X Color Display Interface Card

Combine the MacFG 8X or 24X with a MultiSync® FG™ monitor for the ultimate graphics subsystem for your Macintosh computer.

- Multiple display modes customize desktop size for different applications
- Switch display modes on the fly without restarting
- On-board QuickDraw acceleration
- Compatible with Mac® II family and Quadra series

| MacFG 8X | MacFG 24X |
|---|---|
| **$799** | **$1599** |
| FG8X | FG248 |
| *LIST PRICE $899* | *LIST PRICE $1899* |

**SPECIAL BUNDLE PRICING IS AVAILABLE ON THESE COMBOS:**

| | |
|---|---|
| 4FG + 8X | $1,499 |
| 4FG + 24X | $2,299 |
| 5FG + 24X | $2,899 |
| 6FG + 24X | $4,299 |

# pherals from a at 1-800-398-3539!

## NEC Intersect™ CD/ROM CDR-37

**$359**
*D1-CDR-37*

- Low-cost entry to multimedia CD-ROM
- Fast data access: 450 millisecond average access time, 150 KB/second data transfer rate, 64 KB cache memory
- Optional battery pack for portable operation
- 2 year manufacturer's warranty
- CD-ROM XA-ready for multimedia support

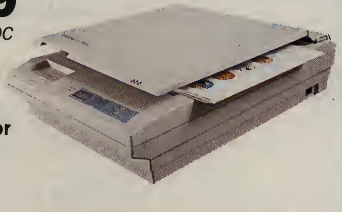
## NEC Intersect™ CD/ROM CDR-74 with MultiSpin™

**$549**
*D1-CDR-74*

- Fastest CD-ROM reader available with MultiSpin technology for fast data transfer
- 280 millisecond average data access time, 300 KB/second data transfer rate, 64 KB cache memory
- CD-ROM XA-ready for multimedia support
- Standard dust brush cleans laser read head for added dust protection
- 2 year manufacture's warranty

## EPSON ES-300C Color Scanner

**$849**
*B1-ES300C*



- **TruePass™ creates superior monochrome scans**
- Capture color in one pass for faster scan times and accurate color mixing.
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**MAC Interface KitRequired**

- SCSI interface board & cable
- Adobe® Photoshop® Limited Edition
- Scantastic ps (plug-in module for Photoshop)
- Acquire DA (scanning desk accessory)
- Epson's apple scanner driver

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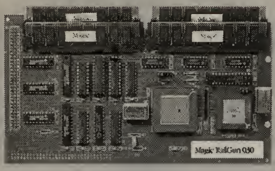
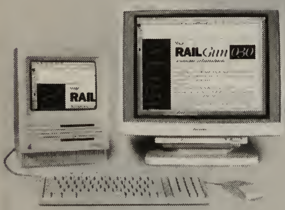
# Magic. **Hard Working Tools for Your Macintosh**

- *The RailGun030 is Available for the Macintosh Plus, SE, & Classic*



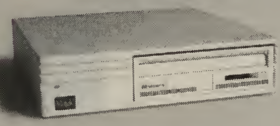
- *Available in 16, 25 & 33MHz Accelerations*
- *System 7 Compatible*



***NEW!** RailGun 030Pro System includes 68030 Accelerator & Display In One Package*

- *Includes RAM-Disk capabilities & up to 16MB of RAM Expansion!*

- *"The Magic 45R is one of the best SyQuest drives available, offering high speed and high quality."* ***–MacUser Magazine***



- *External drives include Magic Case with 40 watt power supply and two external outlets*

- *All MagicDrives available with 2 year warranty and 30 day money back guarantee!*

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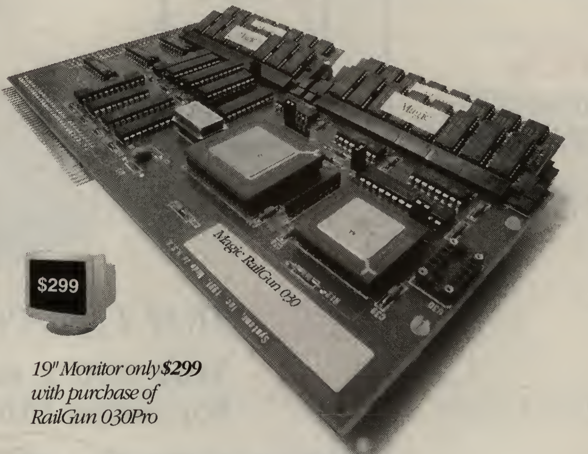
*FWB Hard Disk ToolKit Lite now included with Magic Hard Drives!*

## Magic**RAIL***Gun 030*

*68030 Accelerators for the Macintosh SE, Classic, & Plus*



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*19" Monitor only **$299** with purchase of RailGun 030Pro*

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**Includes Free Copy of Virtual 3.0 RAM Expansion Software
*Add $99 for Classic or Plus Version

| **RAIL***Gun* 030 | | |
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**Includes Free Copy of Virtual 3.0 RAM Expansion Software

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| **MATH** CoProcessor Upgrade | $49 | $1 |
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| Magic**MATH** Classic II CoProcessor | $79 | $3 |

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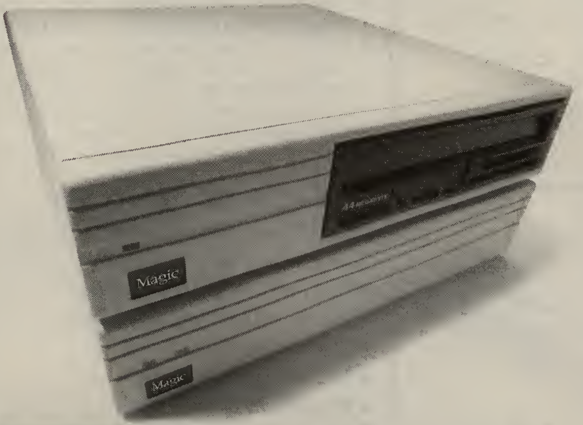

Economy Internal.Kit **$29** • FWB Internal.Kit **$49**
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| Magic **105MB** Quantum LP** | $369 | $11 |
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| Magic **600MB** Wren Runner* | $1599 | $48 |
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### SuperMac Video Specials

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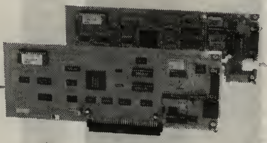
| SuperMac Thunder 24 Card | $2799 | $84 |

## Networking



Networking solutions for any network situation!

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| Quadra Ethernet Transciever | $79 | $3 |
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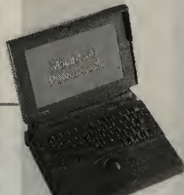
| Asante MC +IIe | $159 | $6 |
| Asante PhoneNet EN | $172 | $6 |
| Asante EtherMac II | $159 | $6 |
| DaynaPort Ethernet | $149 | $6 |

## Macintosh Systems



MacProducts also offers the option to buy or lease your Macintosh Classic, Classic II, Macintosh PowerBook 100, 140, 170, Macintosh LC, IIsi, IIci, IIfx, Quadra 700, Quadra 900.

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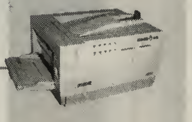
|---|---|---|
| Macintosh LC II with 10MB & 105MB | $1949 | $58 |
| Macintosh IIci with 8MB & 240MB | $3483 | $104 |
| PowerBook 170 4/80 & 8/80 | $3999/$4199 | $120 |

## Printer Specials



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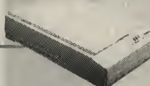
|---|---|---|
| NEC SilentWriter II Model 95 | $1695 | $51 |
| QMS PS-410 with 6MB RAM | $1799 | $54 |
| TI MicroLaser PS35 with 4.5MB RAM | $1749 | $53 |

## Scanner Specials



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| Microtek 600ZS 24-bit Scanner | $1299 | $39 |
| UMAX 630/1200 24-bit Scanner | $1249/$3339 | $38 |

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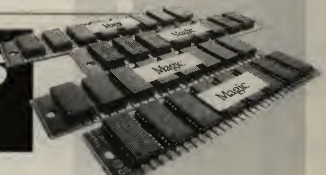

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| Quadra VRAM | $35/$59 | $2 |

**Printer RAM**

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| **NEC** Silentwriter 2 Model 90 2MB Upgrade | $249 | $7 |
| **NEC** Silentwriter Model 95 2MB Upgrade | $159 | $6 |
| **QMS** PS-410 4MB Upgrade | $239 | $8 |
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| **TI** 1/2/3MB RAM Upgrade | $59/$110/$149 | $3 |
| **TI Turbo** RAM Upgrades | Call | Call |

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| **Maxima** RAM Disk & Memory Expander | $45 | $2 |

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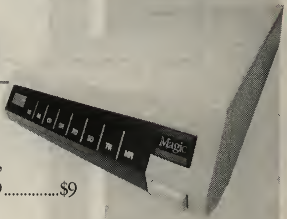
***Maxima*** *RAM Disk & Memory Extender Software* ***$45***

## MagicFaxModems



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| **HAYES** | |
| HAYES CONNECT 3.0 | 74 |
| OPTIMA 2400 | 153 |
| OPTIMA 9600 | 429 |
| PERSONAL MODEM 2400 PLUS | 148 |
| SMARTMODEM 2400 & SMARTCOM | 345 |
| SMARTCOM II 3.3 for the MAC | 82 |
| ULTRA 9600 MODEM & SMARTCOM | 688 |
| **SOFTWARE VENTURES** | |
| MICROPHONE II 4.0 | 209 |

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| CDC-431 CD ROM REMOTE DRIVE | 585 |
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| ACCESS CD ALLEGRO | 655 |
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| PERSONAL SCAN & RECOGNIZE | 669 |
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| SPECTRASTAR 430 COLOR PRINTER | CALL |
| **KODAK** | |
| DICONIX PRINTER | 369 |
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| MARS 800-MAC 64 HAND SCANNER | 299 |
| LANGELO-COLOR IT! | 412 |
| LANGELO-GRAY MAC256 | 328 |
| MACANGELO II MFS 3000 | 869 |
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| **MICROTEK** | |
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| **CD TECHNOLOGY** | |
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| **CLARIS** | |
| CLARIS CAD 2.0 | 625 |
| FILEMAKER PRO | 209 |
| **COMPACT DESIGNS** | |
| PROCLAIM | 238 |
| **DELTAPOINT** | |
| DELTAGRAPH PRO | 186 |

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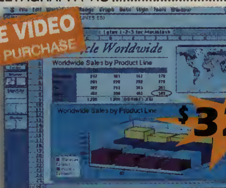
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Worldwide Sales by Product Line
Worldwide Sales by Product Line

$328

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Lotus 1-2-3 for Macintosh exploits the Macintosh environment to the fullest—delivering powerful, graphical, easy-to-use spreadsheet features you won't find anywhere else. Edit text, data, or formulas right in a cell. Or rearrange graph elements in seconds by clicking and dragging them. For total control over your desktop, just pick up, move or modify whatever's on your screen. What's more, enjoy file, macro, and keystroke compatibility with other versions of 1-2-3. Order now and get a free video introducing the great features and functions of Lotus 1-2-3 for the Mac! (While supplies last!)

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| CONTROL CLASSIC | 288 |
| **FISHER IDEA SYSTEMS** | |
| IDEAFISHER 2.0 | 384 |
| **INSIGNIA** | |
| UNIVERSAL SOFTPC | 192 |
| **JIAN** | |
| BIZ PLAN BUILDER | 78 |
| LIVING TRUST BUILDER | 84 |
| EMPLOYEE MANUAL MAKER | 84 |
| **LOTUS** | |
| LOTUS 1-2-3 | 328 |
| **MEYER SOFTWARE** | |
| ON THE AIR | 126 |
| **MICROSOFT** | |
| EXCEL 3.0 | 289 |
| MICROSOFT OFFICE CD ROM | 495 |
| MICROSOFT WORD 5.0 | 289 |
| **NEW ERA** | |
| NUBASE | 174 |
| **PARAGON** | |
| NISUS 3.0.6 | 238 |
| NISUS COMPACT 3.3 | 96 |
| **SAS INSTITUTE** | |
| JMP 2.0 | 589 |
| **SENSIBLE SOFTWARE** | |
| SENSIBILE GRAMMAR | 54 |
| **SHANA CORPORATION** | |
| INFORMED DESIGNER | 156 |
| INFORMED MANAGER | 99 |
| **SOFTWRITERS INC.** | |
| VERSIONTERRITORY (25 USER) | 298 |
| VERSIONTERRITORY (UNLIM. USER) | 1188 |
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| WRITENOW 3.0 | 148 |
| **VISUAL BUSINESS SYSTEMS** | |
| GRAPHMASTER | 208 |
| **WOLFRAM** | |
| MATHEMATICA 2.0 | CALL |
| **WORDSTAR** | |
| CORRECT GRAMMAR 3.0 | 48 |
| AMERICAN HERITAGE DICTIONARY | 48 |

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| DESIGN Interiors/Landscape/Architecture | 62 |
| **ADOBE** | |
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| PHOTOSHOP 2.0 | 535 |
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| STREAMLINE 2.0 | 118 |
| TYPE ON CALL | 45 |
| **AGFA** | |
| AGFA TYPE 3.0 | 59 |
| STUDIO SERIES SPECIAL | |
| *any 8 fonts, get 4 studio fonts free* | 255 |
| TOSHIBA XM-3301 CD AGFATYPE 3.0 | 688 |
| **ALDUS** | |
| FREEHAND 3.1 | 388 |
| GALLERY EFFECTS FREE w/selected purchase | |
| PAGEMAKER 4.2 | 489 |
| PERSUASION 2.1 | 319 |
| **CLARIS** | |
| MACDRAW PRO | 275 |
| **DELTA TAO** | |
| MONET | 238 |
| **DENEBA** | |
| CANVAS 3.0 | 246 |
| **DYNAWARE** | |
| DYNAPERSPECTIVE 2.3.1 new version | 534 |
| **FRAME** | |
| FRAMEMAKER | 589 |

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| **MACROMIND-PARACOMP** | |
| FILM MAKER | 465 |
| MODEL SHOP 2.0 | 598 |
| SWIVEL 3D PRO 2.0 | 465 |
| **MICROFRONTIER** | |
| ENHANCE | 199 |
| COLOR IT | 69 |
| **MULTI-AD SERVICES** | |
| MULTI-AD CREATOR | 498 |
| **NEST** | |
| MACQUILL | 74 |
| **QUARK** | |
| QUARKXPRESS 3.1 | 548 |
| **TYPE SOLUTIONS** | |
| THE INCUBATOR | 95 |
| **VISUAL DEVELOPMENT** | |
| PRESENTER PRO | 3299 |

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| **FARALLON** | |
| FULL LINE *NEW LOW PRICING* | CALL |

## TECHWORKS

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| **10T ETHERNET II SI** | **$248** |
| **10T ETHERNET II SI W/ FPU** | **$308** |
| **10T ETHERNET LC** | **$238** |
| **GRACELAN NTWK MAN 50 USERS** | **$268** |
| **GRACELAN ASSET MAN** | **$538** |
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| **INSIGNIA** | |
| UNIVERSAL SOFT PC | 195 |
| SOFTAT | 295 |
| **MICROCOM** | |
| CARBON COPY MAC | 57 |
| **ORANGE MICRO** | |
| ORANGE 386/20sx PROCESSOR | 1695 |
| ORANGE 386/16sx PROCESSOr | 1375 |
| **SITKA** | |
| MACTOPS BUNDLE | 179 |

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## Utilities/Programming

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| **AFTER HOURS SOFTWARE** | |
| TOUCHBASE | 69 |
| **CD TECHNOLOGY** | |
| AMERICA ALIVE(CD) | 69 |
| **CHENA SOFTWARE** | |
| FAIR WITNESS 1.1 | 299 |
| **EASTGATE SYSTEMS** | |
| FONTINA BOSTON SIX | 33 |
| **GOLDEN TRIANGLE** | |
| SNAP BACK | 98 |
| **ICOM SIMULATIONS** | |
| ON CUE II | 56 |
| SHERLOCK HOLMES CD | 39 |
| **MAXA** | |
| SNOOPER | 117 |

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|---|---|
| **MICROMAT** | |
| MAC EKG 2.0 | 102 |
| **MICROSPOT** | |
| MACPALETTE II | 52 |
| MACPLOT PEN PLOTTER PRO. 4.0 | 276 |
| MACPLOT PEN PLOTTER STANDARD | 133 |
| **MULTI AD SERVICES** | |
| MULTI-AD SEARCH | 108 |
| **NINE TO FIVE SOFTWARE** | |
| REPORTS 2.1 | 93 |
| RESCUE | 63 |

## DYNODEX 2.0

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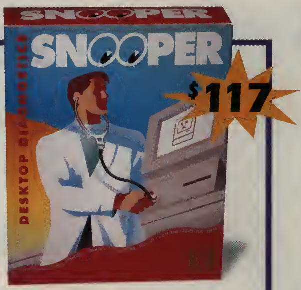
|---|---|
| **PC PC** | |
| NETSTREAM | 188 |
| **PASTEL** | |
| DAYMAKER | 64 |
| **PORTFOLIO SYSTEMS** | |
| DYNODEX 2.0 | 78 |
| **SALIENT** | |
| DISK DOUBLER | 44 |
| AUTO DOUBLER | 44 |
| **SERIUS** | |
| SERIUS DEVELOPER 3.0 *new version* | 414 |
| SERIUS PROGRAMMER 3.0 *new version* | 275 |
| SERIUS POWER OPTIONS various | CALL |
| **SOFTWARE COMPATABILITY** | |
| SOFTWARE BRIDGE | 59 |
| **SOFTWARE PUBLISHERS** | |
| ACCUZIP6 | 612 |
| **SYMANTEC** | |
| NORTON UTILITIES 2.0 | 98 |
| SAM 3.0 | 63 |
| THINK C 5.0 | 196 |



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**...Lets You Find the Problem**

Diagnose from your desk with SNOOPER. SNOOPER performs a comprehensive suite of tests, checks all your hardware and identifies any problems. The same SNOOPER software runs on all Macs. SNOOPER is easy to use and saves time and money. If you already own Norton Utilities, complete your Mac utilities with SNOOPER, the hardware diagnostic.

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| **TEKNOSYS** | |
| HYPERBASIC *SPECIA*L | 29 |
| HELP | 96 |
| **VISIONARY SOFTWARE** | |
| FIRST THINGS FIRST | 41 |

## VERSIONTERRITORY

Imagine updating all of your Macs with the touch of a button. With VersionTerritory, updates that took hours in the past now take just a few minutes. Examine Macs, distribute documents, update software, using the power of your network with VersionTerritory.

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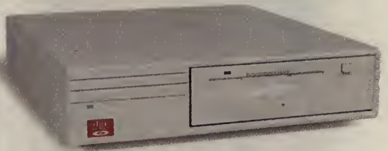
128 megabytes of removable, erasable optical storage on **fast**, ultra-reliable 3.5" disks. Optical storage spells **reliability**: No more head crashes and no more magnetic data corruption.



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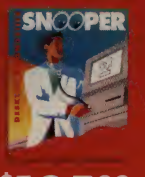

Desktop Diagnostics
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Lets you find the problem

$125⁰⁰

MAXA

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| FASTCACHE 040 | 349.00 |
| POWERCACHE 33MHZ | 689.00 |
| POWERCACHE 40MHZ | 899.00 |
| POWERCACHE 50MHZ | 1349.00 |
| POWERMATH LC | 109.00 |
| **FUSION DATA SYSTEMS (040 ACCELERATOR)** | |
| TOKAMAC ELC 25 | 899.00 |
| TOKAMAC SX 25I (SE/30) | 1199.00 |
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Video Card Required

Dual Orientation 624x832 pixels

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| ROCKET 25MHz | 1615.00 |
| ROCKET 33MHz | 2019.00 |

### DISK DRIVES

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| PLUS DRIVE | 319.00 |
| **MACDEPOT** | |
| EXTERNAL 40MB | 199.00 |
| **MASS MICROSYSTEMS** | |
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| DATAPAK 88 | 699.00 |
| DATAPAK MO/128 (OPTICAL) | 1589.00 |
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| NOVA SERIES | CALL |
| ROADRUNNER 80 | 649.00 |

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| STINGRAY TRACKBALL | 85.00 |
| **CURTIS** | |
| MVP MOUSE | 79.00 |
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| SILHOUETTE TRACKBALL | 85.00 |
| **KENSINGTON** | |
| TURBO MOUSE 4.0 | 105.00 |
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| MIRACLE PIANO | 349.00 |
| **WACOM** | |
| 6X9 TABLET | 499.00 |
| 12X12 TABLET (STANDARD) | 709.00 |
| 12X12 TABLET (ELEC-STATIC) | 779.00 |

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| VIVA 9642e V.32/V.42BIS | 359.00 |
| VIVA 2400 BAUD MODEM | 139.00 |
| HOOK-UP 2400SE | 79.00 |

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| 24SX | 619.00 |
| 24XLI | 1929.00 |
| COLORBOARD 264/SE30 | 699.00 |
| SWEET 16 MONITOR | 1209.00 |

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| FX9624 FAX MODEM | 119.00 |

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| PLP IIS | CALL |
| BLP II | CALL |
| BLP ELITE | CALL |
| WIDEWRITER | CALL |
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| TURBO PS/880 (800DPI) | 3759.00 |
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| UC1200 (1200DPI) | 4599.00 |

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| WORD SCAN PLUS | 399.00 |
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| MAC BUSINESS BUNDLE | 99.00 |

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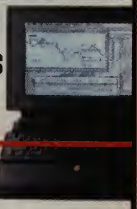

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| **ROADRUNNER 120** | **$739⁰⁰** |

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| PAGEMAKER 4.2 | 489.00 |
| PREPRINT | 319.00 |
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| MACDRAW PRO | 249.00 |
| **QUARK - 30 Day MBG** | |
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| QUICKTIME STARTER KIT | 149.00 |
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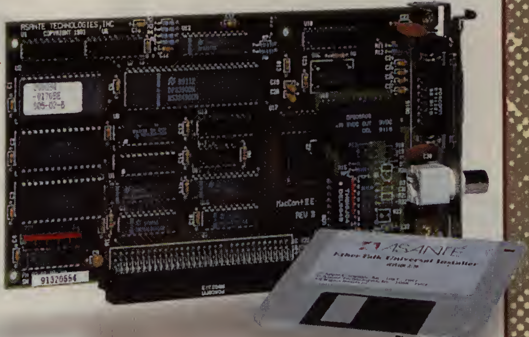

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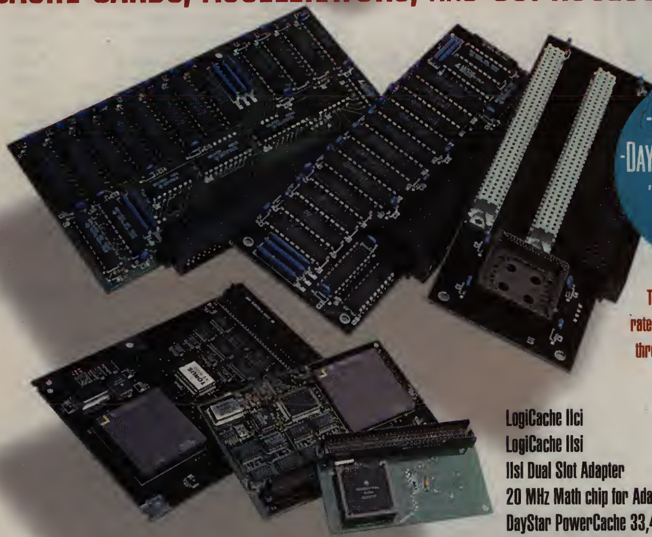

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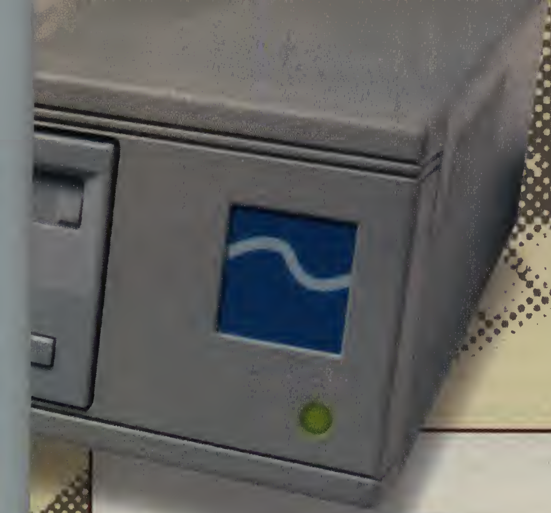

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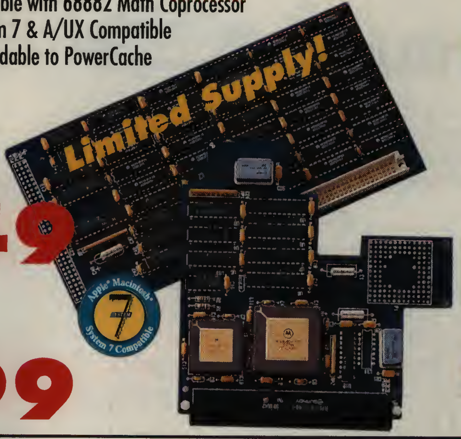

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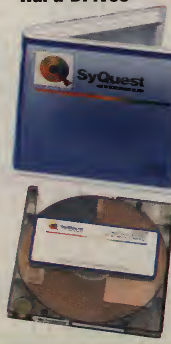

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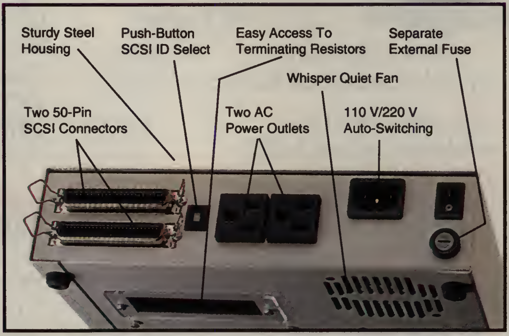
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| **340MB/13ms** | **$949** | **$1019** |
| **535MB/12ms** | **$1099** | **$1179** |
| 675MB/17ms | $1354 | $1544 |
| 1020MB/13ms | $1749 | $1899 |
| 1500MB/13ms | $2474 | $2644 |

## Exabyte

External Tape Backup

| | |
|---|---|
| 8200 2.2GB and Tape | $1999 |
| 8500 5.0GB and Tape | $3199 |

## MacTown

1431 S. Cherryvale Rd.
Boulder, CO 80303

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## CD ROM

Toshiba External Kit
Includes "Nautilus" CD
**$559**

## Seagate

| | Intl | Extl |
|---|---|---|
| 49MB/28ms | $234 | $304 |
| 426MB/14ms | $1129 | $1199 |
| 676MB/12ms | $1519 | $1699 |
| 1020MB/15ms | $1895 | $1998 |
| 1420MB/15ms | $2295 | $2395 |
| 1352MB/12ms | $2849 | $2999 |

CIRCLE 17 ON READER SERVICE CARD.

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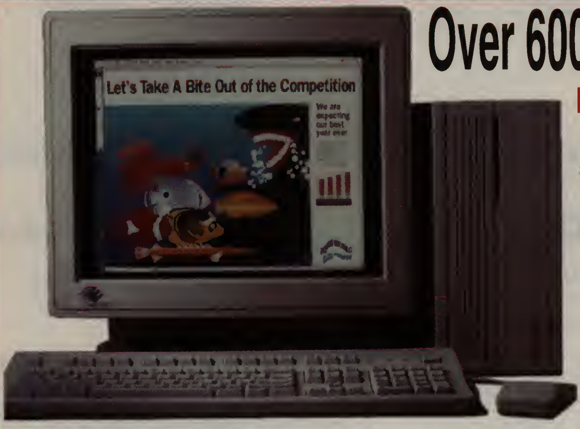

with ColorPage T-16 (pictured above) instead of 14" Color Monitor, only $5209.

**Mac IIci System**
**$3,549**
Macintosh IIci, 5mb RAM, 105mb HD, 1.44mb Apple FDHD, Mouse, Extended Keyboard, 14" Color Monitor, 8-bit color.

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**$6,909**
Quadra 700, 20mb RAM, 240mb Hard Drive, 1.44mb Apple FDHD, Mouse, Keytronic MacPro Plus Extended Keyboard, E-Machines 16" ColorPage T-16 Monitor, 832x624 resolution, 24-Bit Built-in Color.

## Color Monitors and Cards

| | |
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| ColorPage T-16, E-16 | Call |
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|---|---|---|---|---|---|---|---|---|---|
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| $52^{LPS}$ | Quantum* | 17 | $229 | $299 | 330 | Fujitsu | 12 | $1025 | $1119 |
| 80 | Maxtor | 19 | $279 | $339 | 425 | Fujitsu | 12 | $1199 | $1169 |
| $105^{LPS}$ | Quantum* | 16 | $339 | $399 | 520 | Fujitsu | 12 | $1199 | $1249 |
| 130 | Maxtor | 15 | $349 | $399 | $660^{FH}$ | Micropolis | 16 | NA | $1599 |
| 210 | Maxtor | 15 | $599 | $679 | $1050^{FH}$ | Micropolis | 14 | NA | $2199 |
| 210 | Quantum* | 16 | $629 | $689 | $1050^{FH}$ | Seagate | 14 | NA | $2199 |
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| 20ms w/ 88MB cartridge | $599 |
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| NEC | |
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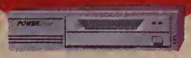

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| 4mm w/ Retrospect™ | $1495 |
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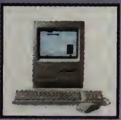

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**Sale price/Lease price**

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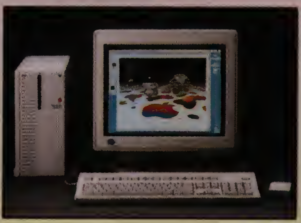
# Mac Systems



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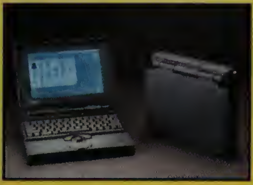

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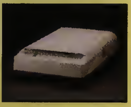

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*or $37**
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## Accelerators and More...

DayStar 30 Day Money Back Guarantee (restrictions apply)

| | |
|---|---|
| DayStar FastCache IIci | $269.00 |
| DayStar FastCache IIsi | $289.00 |
| DayStar 33 MHz PowerCache LC | $669.00 |
| DayStar 40 MHz PowerCache | $869.00 |
| DayStar 50 MHz PowerCache | $1335.00 |

*Available for the LC, SE/30, II, IIx, IIcx, II si & IIci*

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|---|---|
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| Caere Typist Hand Held OCR | $479.00 |
| Microtek 600 GS | $799.00 |
| Microtek 600ZS Color Scanner | $1349.00 |
| Microtek 1850S | $1999.00 |
| UMAX UC - 630 Scanner | CALL |

## ETC® Peripherals Inc. Hard Drives...

| Maxtor | Internal | External |
|---|---|---|
| ETC 80 Mb | $289.00 | $359.00 |
| ETC 120 Mb 15 msec | $359.00 | $429.00 |
| ETC 213 Mb 15 msec | $589.00 | $659.00 |
| ETC 340 Mb 13 msec | $1009.00 | $1079.00 |
| ETC 535 Mb 13 msec | $1449.00 | $1509.00 |
| ETC 760 Mb 13ms | $1499.00* | $1559.00 |
| ETC 1.2 Gb 13 msec | $2169.00* | $2279.00 |
| ETC 1.7 Gb 13ms | $2489.00* | $2589.00 |
| Quantum | | |
| ETC 52 Mb 12 msec | $239.00 | $299.00 |
| ETC 80 Mb [illegible] | CALL | |
| ETC 105 Mb 12 msec | $349.00 | $429.00 |
| ETC 120 MB 11ms | $439.00 | $519.00 |
| ETC 240 Mb 11ms | $739.00 | $809.00 |
| ETC 425 Mb 9 msec | $1269.00 | $1339.00 |
| Seagate | | |
| ETC 307 Mb WREN-4 | $1129.00* | $1279.00 |
| ETC 337 Mb WREN-Runner-1 | $1279.00* | $1429.00 |
| ETC 613 Mb WREN-5 | $1349.00* | $1499.00 |
| ETC 676 Mb WREN-6 | $1399.00* | $1549.00 |
| ETC 676 Mb WREN-Runner-2 | $1649.00* | $1799.00 |
| ETC 1.2 Gb 15ms | $1899.00* | $2049.00 |
| ETC 1.7 Gb 15ms | $2399.00* | $2549.00 |
| Fujitsu | | |
| ETC 330 Mb 3.5" HH, 9ms | $1119.00 | $1179.00 |
| ETC 425 Mb 3.5" HH, 9 ms | $1189.00 | $1249.00 |
| ETC 520 Mb 3.5" HH, 9 ms | $1249.00 | $1309.00 |

*The drives above can be used in the Mac II, IIx, IIfx, & 900

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ETC 45R SyQuest Removable
*Low price includes one cartridge.*
$429

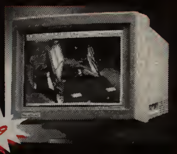
ETC Dual 45R/88R SyQuest
*Two removable drives in one box. Includes one of each cartridge! Also available is the ETC 44DR Dual and 88DR Dual Syquest Drives for $799.00 and $1299.00*
$1049

ETC 88R SyQuest Removable
*New low price includes one cartridge. MacUsers four mice winner!*
$579

| | |
|---|---|
| 45 Mb Syquest Cartridge | $65.00 |
| 88 Mb Syquest Cartridge | $119.00 |

## Specials...

**Seiko Trinitron 14" C**



$559

*The Seiko Trinitron 14" Color Monitor gives you both uncompromising quality and unmatched color.*

Features:
- Cylindrical Trinitron reduces glare and maintains focus
- Tilt and Swivel base included

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August, 1992

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## ETC 10BaseT Hub

*The ETC 10BaseT provides twelve UTP ports, via RJ-45 modular jacks for connection to network interface cards. On-board transceiver, provides diagnostic LED for each UTP ports, two sets of switchable BNC/AUI port, five status LEDs indicate repeater link and performs full multi-port repeater functions specified in IEEE 802.3 standard. It also has 110/220v automatic detection and switching.*

## ETC Repeater

*The ETC Repeater is an economic and easy solution to expand your ethernet network. The ETC Repeater provides two BNC ports for connection to two thin-eithernet segments, IEEE 802.3 10 Base2 Thinnet standard, full multi-port functions, four LEDs indicate both segments' reception and transmission status and supports a maximum of five segments with a network length of 3035 feet, via four repeaters.*

## ETC DATApress

*The first "smart" SCSI data compression interface designed to work external of the Macintosh.*

Features:

- "Real-time" data compression
- Allows seven additional SCSI devices to be added to your Mac.
- Won't interfere with virtual memory
- Can be added as an internal option to the ETC DataPort Family of removable cartridge drives.

## ETC PowerGlide 105 Keyboard!

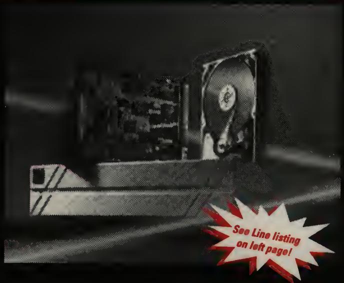
Features:

- 105-key extended keyboard layout with full cursor control; 15 function keys; and numeric keypad
- Apple Desktop Bus (ADB) Interface
- Foreign Language keyboards are also available

## ETC Tools™

*ETC Tools 2.2 is a completely new version of the formatting utility that ETC now ships with their DataPort drives—and there has never been anything like it before. Its worry-free graphic interface makes formatting and initializing cartridges and drives a snap. You'll never have to fear whether you are erasing the right drive again. You can even combine separate drives into what appears to be one giant hard disk on your desktop with ETC Tools' SuperVolume feature.*

*$43*



## ETC Hard Drives!

*The ETC drives are fast, reliable, and economical. A better all around value can not be found. Let your Mac and MORE sales representative know what kind of Macintosh you have. That's the only way we can be sure that your new drive will 'fit' your Mac.*

## ETC Removable Drives

*ETC Removable Drives feature a SyQuest 45 or 88 MB drive in a"zero"footprint half-height drive enclosure. Included with the drive is one removable cartridge, SCSI interface cable, ext. terminator block, power cord, manual, and ETC Tools 2.2.*

## ETC DataPort

*Each cartridge houses a 3.5" hard drive with drives ranging from 105 to 535 Mb that can easily be removed and transported to another location.*

- *ETC DataPort (one bay)*
- *ETC DataPort Twin (two bays)*
- *ETC DataPort Tower (four bays)*

## Now you can have PCs on your Macintosh network or share peripherals with a little help from ETC…

## ETC LAN Adapter

*The ETC LAN Adapter is an external connection that allows IBM and IBM compatibles access to Macintosh Ethernet Thin or 10BaseT networks.*

## Magic Converter

*ETC Magic Converter II - parallel to SCSI interface to connect most SCSI hard disks, tape, CD-ROM, and removable drives to your IBM & compatibles.*

## ETC™ 30 day return policy

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## **NEW!** Quark XPress 3.1 **$511**

Ask about our wide selection of Quark XTensions.

*As Seen In MacUser July 92*

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300 DPI Postscript Level 2•Auto PC–Mac Switching
6 pages per minute • 35 Resident Fonts

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Erasable optical drive with 35ms access.
3.5" 128MB cartridges only **$59**

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14" Trinitron **$539**

JetInc. Inkjet Refill
Twin Pack **$15.99**

For HP DeskWriter & Apple StyleWriter

Sony 17" 1604 **$1029**
Sony 14" 1304 **$609**

*Macintosh Trinitron Monitors*

Umax 630 24-bit Scanner
with PhotoShop **$1199**

Umax 1200 Scanner **$3059**
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***Now Included With All Macintosh Systems – FWB Hard Disk ToolKit Lite!***

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| Asante MacCon +IIe 16/64k | **169/225** |
| Asante MacCon +301 16/64k | **179/349** |
| DaynaPort e/II Mac II Ethernet | **169** |
| Dayna EtherPrint /EtherPrint Plus | **329/599** |
| Farallon Star Controller/EN | **799/975** |
| PhoneNet 10 Pack | **188** |
| QuickMail 10 User V.2.5 | **359** |
| Shiva Ethergate / FastPath 4 | **1262/ 1850** |
| Shiva Netbridge/ Telebridge | **399** |

### Generation Systems

14" Color Monitor................**$429**
20" 24-bit Color System.....**$2138**
20" 8-bit Color System.......**$1710**
SE/30 8-bit Color Card ........**$269**
All Generation Systems In Stock!

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|---|---|
| Timbuktu Remote Access Pak | **732** |

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| Apple Extended Keyboard | **170** |
| EMAC Silhouette | **75** |
| Kensington Turbo Mouse | **101** |
| Keytronic MacPro Plus Keyboard | **115** |
| Mac Recorder Digitizer Only | **89** |

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| Global Village FullFax Send & Receive | **215** |
| Global Village Powerport | **465** |
| LogiCode QuikTel Zeba | **374** |
| Promethius 9696 Sen/Recieve | **599** |
| Shiva Net Modem v.32 | **1099** |
| Supra V.32 Sen/Recive Fax | **349** |
| US Robotics Courier 9600 V-32 Dual | **799** |
| ZOOM 24/96 Send/Receive Fax | **119** |

### PRINTERS

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|---|---|
| Abaton LaserScript LX | **1099** |
| Apple LaserWriter IIf 20MHz 030 | **2735** |
| Apple LaserWriter IIg 25MHz 030 | **3425** |
| Apple StyleWriter | **339** |
| Apple Personal Laser LS/NT | **899/1315** |
| **NEW** Apple Personal LaserWriter NTR | **1675** |
| **GCC** PLP II/PLP IIs | **849/1246** |
| **GCC** BLP Elite 4ppm | **1415** |
| **GCC** BLP II/BLP IIs | **1659/2409** |
| Hewlett Packard Lasers | **Call** |
| Hewlett Packard DeskWriter | **385** |
| Hewlett Packard DeskWriter C | **675** |
| LaserMaster High Res Printers | **Call** |
| LinoType 330,550, & 630 with RIP 4 | **Call** |
| **QMS PS-410** | **1475** |
| Seiko ColorPoint PS –A Size | **3575** |
| Tektronix Color Quick InkJet | **1651** |

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19" Two Page Macintosh Display
1152x876 DPI Display with 97HZ
Refresh Rate & One Year Warranty
19" Monochrome ..................$499
19" Greyscale .........................$699

Includes
Card For
SE, SE/30,
LC, LCII,
or NuBus
Macintosh

| | |
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| TI microLaser PS XL 17/35 | **2449/2799** |
| TI MicroLaser Turbo/TurboXL | **1949/3129** |

### VIDEO SOLUTIONS

| | |
|---|---|
| Apple 12"/13" HighRes RGB | **425/639** |
| Apple 16"/21" Color RGB | **1269/3534** |
| **E-Machines T-16II** | **1549** |
| E-Machines Monitors –All Models | **Call** |
| Envisio PowerBook Video Card | **829** |
| Ikegami CT-20" Trinitron | **1795** |
| Mass Micro Quick Image 24 | **579** |
| NEC MultiSync 4FG | **Call** |
| **NEC Monitors –All Models** | **Call** |
| Seiko CM-1445 | **539** |
| Sony 1304 /1604 | **609/1029** |

### ACCELERATORS & CACHE

**Applied Engineering**

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|---|---|
| **AE** QuickSilver IIsi | **189** |
| **AE** QuickSilver IIsi w/FPU | **255** |
| **AE** TransWarp LC 33MHz | **759** |
| **AE** TransWarp LC 33MHz w/FPU | **895** |
| SIMMs: all types/best prices | **Call** |
| ATTO IIci Cache Card | **149** |
| Motorola PMMU 68852 | **59** |
| Sigma Double-Up Card | **189** |

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| 12x12 Standard | $659 |
| 12x12 Electrostatic | $710 |
| 12x18 Standard | $969 |
| 12x18 Electrostatic | $1025 |
| 18x25 Standard | $2549 |

**Painter $199**
(with purchase of Wacom Tablet)
Wacom compatible MacUser Eddy Award Winner from Fractal Design

**1MB TI Printer Upgrade $59**

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600 DPI 24-bit Scanner with Photoshop 2.0 & ScanMatch Calibration Software

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**TI microLaser Plus PS/17 $1225**
**TI microLaser Plus PS/35 $1525**
Appletalk interface & 1.5MB RAM included on all models
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**Turbo microLaser PS/35 $1949**
RISC Processor • Postscript Level 2 • Appletalk Interface
16ppm Turbo microLaser PS/35 XL $3129

## SUPERMAC

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| Spectrum /8•24 PDQ | $799 |
| Spectrum /Series III 8/24 | $515/$1375 |
| Spectrum /8 IIsi & LC | $478 |
| Thunder 8/24 Video Cards | Call |
| **NEW!** 17" Color Trinitron Display | $999 |
| 19"/21" Platinum Display | $882/$1030 |
| SuperMatch 20" Dual Mode Trinitron | $2459 |
| SuperMatch 20" Color | $1625 |

**Video Spigot starting at $399**
**Thunder Cards – Call!**

## RasterOps

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| CorrectPrint 300DPI Dye-Sub Color | $6999 |
| **ProColor 32** CMYK 9-bit DAC | $2995 |
| 8/24XLi Accelerated Video Card | $989/$1699 |
| MediaTime –QuickTime Video | $1525 |
| 24s / 24sx –24-bit Video | $399/$629 |
| Video Expander (NTSC/PAL) | $475 |
| RasterOps 20" Color | $2375 |
| 364 Board Frame Grabber 24-bit 13/14" | $699 |

**NEW! RasterOps Paintboard Li $799**
**Accelerated 13"-20" 24-bit Video Card**

## radius

| | |
|---|---|
| **Rocket 040 Accl /25i** | $1625/$1234 |
| Precision Color Interface 8x/24x | $749/$1625 |
| Precision Color Display 19"/20" | $2099/$2745 |
| Two Page Display 19"/21" | $915/$1175 |
| Color Display 21" | $3195 |
| Mono/Color Pivot Interface | $399/$525 |
| Full Page Display | $565 |
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**Radius Color Pivot $1265**
Landscape or Portrait View • Tilt Swivel Stand

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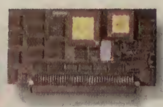

**Accelerators for LC, SE/30, II, IIsi, IIcx, IIci**
All Cards Include Free CPU Slot Adapter!

| | |
|---|---|
| 33MHz PowerCache | $607 |
| 33MHz PowerCache with 68882 FPU | $790 |
| 40MHz PowerCache | $790 |
| 40MHz PowerCache with 68882 FPU | $973 |
| 50MHz PowerCache | $1216 |
| **FastCache IIsi/IIci** | $265/$235 |

**Daystar 50MHz PowerCache with 68882 FPU $1469**

### SCANNERS

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|---|---|
| HP ScanJet IIc | 1299 |
| Microtek 600GS with PhotoShop LE | 745 |
| Microtek 600ZS with Photoshop | 1229 |
| Microtek 1850 Slidescanner | 1489 |
| **Sharp JX320 w/Interface** | 1375 |
| Sharp JX450/600 w/Interface | 4159/9989 |
| Umax 630 w/Photoshop | 1199 |
| **Umax 1200 w/Photoshop** | 3059 |

### DRIVES & TAPES

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|---|---|
| Applied Engineering 1.44 Drive | 209 |
| Applied Engineering Plus Drive | 283 |
| Bernoulli 90MB w/ Interface | 814 |
| PLI Super Floppy/Turbo Floppy | 399/287 |
| **PLI Quick SCSI with Cable** | 319 |
| Conner 40MB Limited Qty | 169 |
| Quantum 105MB LPS | 349 |
| Quantum ProDrive 240MB | 659 |
| Quantum 425MB | 1149 |
| Fujitsu 680MB/1.2GB | 1255/1875 |
| **Fujitsu Drives** All Models | Call |

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|---|---|
| Chinon CD-ROM | 525 |
| NEC CDR-36 w/ Type Gallery | 469 |
| NEC CDR-73 | 616 |
| PLI CD ROM | 636 |
| Toshiba CD-ROM XM 3201A | 685 |
| Microsoft Office - CD ROM | 574 |
| Type Gallery PS | 229 |
| NEC Clip Art 3-D | 221 |

### SOFTWARE

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|---|---|
| 4th Dimension 2.2 | 469 |
| Adobe Illustrator 3.2 w/ATM | 335 |
| Adobe PhotoShop 2.0 | 499 |
| Adobe Type Manager 2.0.2 | 54 |
| Adobe Type Reunion/Streamline2 | 36/115 |
| AfterDark & More After Dark Bundle | 37 |
| Aldus Freehand 3.1 | 369 |
| Aldus PageMaker 4.02 | 475 |
| Aldus Superpaint 3.0 | 129 |
| Aldus Gallery Effects | 129 |
| Aldus Persuasion 2.0 | 299 |
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| AutoDoubler | 41 |
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| Carbon Copy 2 Pack | 153 |
| Claris Works | 184 |
| DiskFit Pro | 67 |
| Disk Doubler 3.7 | 39 |
| Disk Top 4.0 | 62 |
| Farallon Media Tracks | 171 |
| Far Side Calendar | 46 |
| Fastback Plus 2.6 | 115 |
| FileMaker Pro | 181 |
| FilmMaker | 399 |
| Fontographer 3.3 | 249 |
| FontMonger | 65 |
| Foxbase +Mac 2.01 | 265 |
| **Fractal Design Painter** | 234 |
| FrameMaker | 642 |
| **Lotus 1-2-3 minimal packaging** | 89 |
| Mac Academy Video Training Tapes | 39 |
| MacDraw Pro | 249 |
| Mac Globe | 39 |
| MacProject II 2.5 | 329 |
| **NEW!** Macromind Director 3.1 | 849 |
| Macromind MediaMaker | 449 |
| MacWrite Pro | Call |
| Managing Your Money 4.0 | 92 |
| MasterTracks Pro | 183 |
| MicroPhone II 4.0 | 195 |
| Microsoft Excel 3.0 | 299 |
| **NEW! Microsoft Word 5.0** | 279 |
| Microsoft Office | 489 |
| MS Project | 429 |
| MS Works | 179 |
| MiniCAD 3.1 | 469 |
| More 3.1 | 249 |
| Norton Utilities Mac 2.0 | 88 |
| OmniPage 3.0 /OmniPage Pro | 449/629 |
| Passport Encore | 335 |
| Passport Midi Interface | 63 |
| PixelPaint Professional 2.0 | 479 |
| Pixar Renderman | 559 |
| Quark XPress 3.1 | 511 |
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| WordPerfect 2.03 | 265 |
| Write Now 2.2 | 111 |

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| PLI Infinity 88 SyQuest | $699 |
| PLI 3.5" Sony 128MB | $1575 |
| PLI 5.25" Tahiti 1.0GB | $4129 |
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- Maxtor stands behind their products with a full two-year manufacturer's warranty and an MTBF of at least 150,000 hours.
- Maxtor has drives "performance matched" for Apple's high-performance Macs.

## WREN

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|---|---|---|
| 330 | $1299 | $1449 |
| 480 | 1249 | 1349 |
| 600 | 1399 | 1549 |
| 630 | 1649 | 1749 |
| 1.2G | 1899 | 1999 |
| 1.6G | 2799 | 2949 |

## Quantum

| MB | INTL | EXTL |
|---|---|---|
| 52 | $229 | $299 |
| Go•80 | 439 | N/A |
| 105 | 349 | 429 |
| 120 | 399 | 479 |
| 240 | 659 | 729 |
| 425 | 1099 | 1169 |

## Maxtor

| MB | INTL | EXTL |
|---|---|---|
| 120 | $359 | $439 |
| 213 | 599 | 699 |
| 340 | 949 | 1049 |
| 535 | 1249 | 1349 |
| 760 | 1399 | 1549 |
| 1.2G | 1899 | 1999 |

*APS provides internal hard drives for most Macintosh models and external zero-footprint or compact, portable hard drives. Prices and Specifications are subject to change without notice.*

## Fujitsu

| MB | INTL | EXTL |
|---|---|---|
| 330 | $1099 | $1199 |
| 520 | 1249 | 1349 |

## Toshiba

| MB | INTL | EXTL |
|---|---|---|
| 830 | $1749 | $1849 |

*800 MBs in your SE, SE/30, Ci, Q-700*

**Just ask away**...When you phone, you have a right to expect courtesy, logic and a helpful attitude. Many people ask us questions about hard drives, SCSI addresses, termination, etc. We may not know all the answers, but we'll try to find any we don't have. If you decide to place an order, that's nice too.

# APS Technologies

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# APS Technologies

# Buy Toshiba–Get a Bundle

## Toshiba CD-ROM $699

**Includes APS Reference and Entertainment Library**

- Toshiba's exclusive contamination-proof mechanism
- Toshiba's high performance–325 ms ave. access time
- Illustrated Encyclopedia
- World Atlas
- The Orient: InterOptica's Multimedia Travel Encylcopedia
- Time Table of History: Science & Innovation
- Macintosh Animation Showcase
- Nautilus: Intro
- Sherlock Holmes: Consulting Detective

## Monitors

| Model | |
|---|---|
| **TriAm** Full Page | $399 |
| *16 grays w/Macintosh Si, Ci and Quadra built-in video* | |
| *256 grays w/Lapis card for SE/30, LC, Mac IIs* | *$799* |
| **Sampo** Dual Page Mono | $699 |
| *Sampo Dual Page Grayscale 256 grays w/Lapis card* | *$849* |

## 2.6-5$^{GB}$ DAT

| MB | INTL | EXTL |
|---|---|---|
| APSDAT | $1599 | $1699 |
| *2.6 - 4 GB Compression DAT* | | |
| APSDAT | 1299 | 1399 |
| *Desktop and Portable Units* | | |
| *DATs are Archive-based Mechanisms* | | |
| TEAC 155 | | $499 |
| *All Tape Drives Include Retrospect by Dantz Development* | | |

## Toshiba

| | |
|---|---|
| CD-ROM | $699 |
| *Includes seven-disc APS Reference and Entertainment Library* | |

## SyQuest

| Model | EXTL |
|---|---|
| SQ-555 | $479 |
| SQ-5110 | 599 |
| Dual 44 | 899 |
| Dual 88 | 1199 |

*For a limited time–With any drive purchase, you can buy Redux or Init Picker by Microseeds Publishing, and CalendarMaker (any one, $20; any two, $33.95; any three, $44.95) or DiskTop by CE Software for $29.95.*

• **30-Day Money-Back Guarantee** • All drive products carry a 30-day money-back guarantee. Your risk in the transaction is the cost of shipping.

• **Disk-for-Disk Replacement Warranty** • Maxtor, Quantum, SyQuest, Toshiba and DAT drives carry a two-year "parts & labor" disk-for-disk replacement warranty. WREN, TEAC drives and SyQuest cartridges carry a one-year "parts & labor" disk-for-disk replacement warranty. Fujitsu drives carry Fujitsu's five-year warranty.

• **Prices & Specifications Subject to Change Without Notice** •

• **Brackets and Cables Included** • All hard drives include brackets, cables, cords and LEDs required for operation in the specified Macintosh. All hard drives come pre-formatted with Apple's latest stable all-platform System software, 9.2mb of compacted publicly distributable software, and APS Technologies' "ALLIANCE POWER TOOLS" SCSI formatter/hard partitioner.

• **Toll-Free Technical Support** • Toll-Free Technical Support, 9am to 7pm Monday –Friday, Central Time. As often or for as long as you need.

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# APS Technologies

# MacUser MARKETPLACE

## MARKETPLACE

The cost-effective buying arena that provides sellers of Macintosh compatible products 3 advertising options: Premier, Classified and BusinessCard to meet their specific advertising goals, reaching 382,000 Macintosh Business Buyers. All sections are set up by product category and offer reader service

## PREMIER

The four-color showcase that spotlights leading-edge products and services.

313-319

## CLASSIFIED

Flexible-format display advertising that offers diverse sizes plus two and three color options Section meets dynamic advertising needs for all Macintosh products and services.

320-339

## BUSINESS CARD

A forum for innovative, unique, low-cost and hard-to-find Macintosh hardware, software, and miscellaneous products and services.

340-341

## PRODUCT CATEGORIES

### HARDWARE

| | PREMIER | CLASSIFIED | BUSINESSCARD |
|---|---|---|---|
| Accelerator Boards | | 320 | |
| Bar Coding | | 320 | |
| CD-Rom | | | |
| Communications | | | |
| Computer Systems | 313 | 320 | 340 |
| Data Acquisition | | | |
| Data Recovery Services | 313 | 326 | 340 |
| Disk Drives | 313 | 326 | |
| Diskettes | | 326 | |
| General | | 326 | |
| Input Devices | 315 | | |
| Insurance | | 326 | 340 |
| Memory Upgrades | | 326 | |
| Networking | | | |
| Peripherals | 315 | 330 | |
| Power Supplies | | 333 | |
| Printers | | 333 | |
| Scanners | 315 | 333 | 340 |
| Security | | | |
| Used Equipment | | | |

### SOFTWARE

| | PREMIER | CLASSIFIED | BUSINESSCARD |
|---|---|---|---|
| Accounting | 316 | 334 | 340 |
| Bar Coding | 316 | 334 | |
| Business | 316 | 334 | 340 |
| Business Time Management | | | |
| CAD/CAM | | | |
| CD-Rom | 317 | 335 | |
| Communications/Networking | | 336 | |
| Desktop Publishing | 317 | 336 | |
| Educational | | 336 | 340 |
| Emulation | | 336 | |
| Engineering | | 336 | 340 |
| Entertainment/Games | 317 | 336 | 340 |
| Financial | | | |
| Fonts | | 337 | 341 |
| Foreign Language | 318 | 337 | |
| Genealogy | | 337 | |
| General | | | 341 |
| Government | | | |
| Graphics | | 337 | |
| Health | | 338 | 341 |
| Language Tools | | 338 | |
| Legal | | | 341 |
| Lottery | | 338 | |
| Medical/Dental | | | 341 |
| Music/MIDI | 318 | 338 | 341 |
| Networking | | | |
| Personal Management | | | |
| Programming Tools | 318 | | |
| Public Domain | | 338 | |
| Real Estate | | | 341 |
| Recreation | | | 341 |

| | PREMIER | CLASSIFIED | BUSINESS CARD |
|---|---|---|---|
| Religion | | 338 | |
| Sales Marketing | | | |
| Scientific | | 339 | 341 |
| Security | | | |
| Shareware | | 339 | |
| Stackware | | | |
| Statistics | 318 | | |
| Taxes | | | |
| Utilities | 318 | | |
| Word Processing | | | |

### MISCELLANEOUS

| | PREMIER | CLASSIFIED | BUSINESS CARD |
|---|---|---|---|
| Accessories | 319 | 339 | |
| Books/Catalogues | | | |
| Business Opportunities | | | |
| Consulting/Programming | | | 341 |
| Data Conversion Services | | 339 | 341 |
| Desktop Publishing Services | | 339 | 341 |
| Diskette Copy Services | | | |
| Furniture | | | |
| Insurance | | | |
| Novelties | | | |
| Services | | 339 | 341 |
| Slide Imaging Services | 319 | 339 | |
| Supplies | 319 | 339 | |
| Training | | | |

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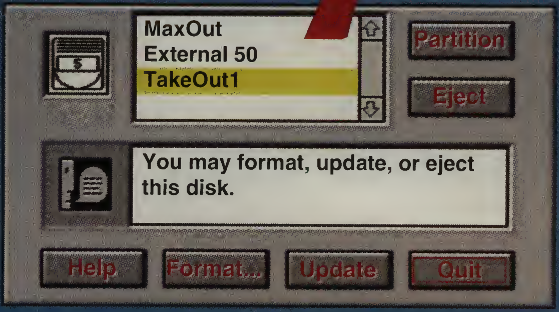

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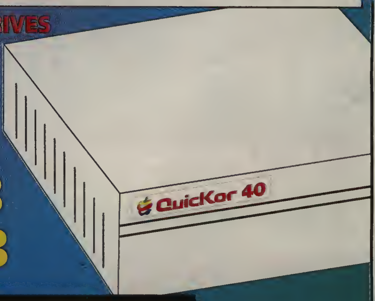

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*"This is one case where less means more!"*

| | |
|---|---|
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| **Shadow 105 LPS** 11ms | 462 |
| **Shadow 120 LPS** 10ms | 539 |
| **Shadow 210** 10ms | 699 |
| **Shadow 240 LPS** 10ms | 839 |
| **Shadow 425** 10ms | 1399 |

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Two Year Full Warranty

| Authorized Quantum Dealer | Int. | Ext. |
|---|---|---|
| Pro 52 LPS 11ms | $239 | $319 |
| Pro 105 LPS 11ms | 372 | 452 |
| Pro 120 LPS 10ms | 449 | 529 |
| Pro 210 10ms * | 609 | 689 |
| Pro 240 LPS 10ms | 749 | 829 |
| Pro 425 10ms | 1319 | 1399 |

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RATED MacUser APRIL 1992

* Our Pro Series 210 Mb Drive was awarded 4 Mice in the April 1992 MacUser—"The TMS Peripherals Pro 210...never let us down...with better-than-average speed, design & construction quality, packaging & support...this is a good choice."

PRO SERIES FEATURES: Easy Access Term. Window • Internat'l. Auto-Switching PS • Selectable Pushbutton SCSI ID Switch • Thermostatically Controlled Fan • VCA Mechanism • DiskWriter™, TMS' Universal Formatting Software • 25+ Mbs Shareware • 2 SCSI Ports • 2 AC Jacks • Shielded Power Supply • ALL Hardware & Documentation • TOLL-FREE TECHNICAL SUPPORT

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- Spectrum / 8™ si, 8 LC or 8 Series III, $499.95
- Spectrum / 24™ Series III, $1425.95
- ColorCard/24™, $499.95

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- QuadraLink w/ Shadow LAN Networking Software, $252.95
- QuadraLink DMA w/ Shadow LAN, $252.95
- TransWarp 040 33 Mhz w/ FPU, $2275.95
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Custom high-speed 64K SRAM cache circuit.
100% compatible with all Macintosh software.
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$290.95 with FPU!

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# Macintosh Systems

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- Macintosh LC II 4/40, $1399
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- Macintosh IIci 5/0, $2699
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**Please call for Monitor/Printer prices!**

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MACUSER - JANUARY 1992

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*for Bar Codes that don't fail*

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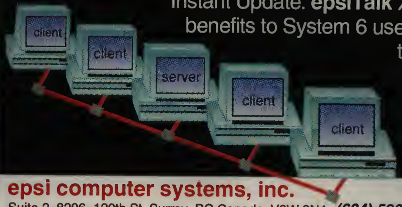

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MacUser MARKETPLACE

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CIRCLE 256 ON READER SERVICE CARD

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# INTRODUCING THE BOOKENDZ™ POWERBOOK™ DOCKING STATION

**INTRODUCTORY PRICING:**
Model 100 $149 Model 140/170 $179

- Eliminates Cable Confusion
- Uses Your Connectors
- Instant Attach or Detach
- Requires No Power
- Model 100, 140 or 170
- Low Cost

Imagine never having to fumble with connectors again! No more crawling under your desk looking for that elusive cable. No more bent or broken pins on a mismatched connector. You'll never leave your PowerBook on your desk again just because it was difficult to disconnect everything. When you return, you'll reattach everything for true desktop power in seconds.

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**Patent Pending.** PowerBook is a trademark of Apple Computer, Inc.

**Pilot Technologies, Inc.**

**BOOKENDZ™**
**MAKING ENDS MEET**

CIRCLE 257 ON READER SERVICE CARD

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# NOW, YOU CAN AFFORD TO LOOK AS GOOD AS YOU ARE!

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Call today for details!

**MacUser Premier**
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MacUser MARKETPLACE

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Scanners
and
Transparency
Option

**ArtiScan gives you—**
**state-of-the-art resolution and impeccable image quality.**

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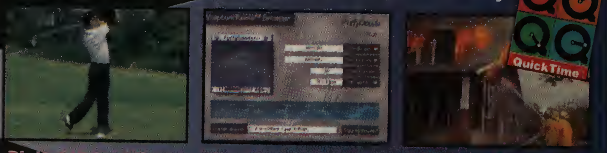

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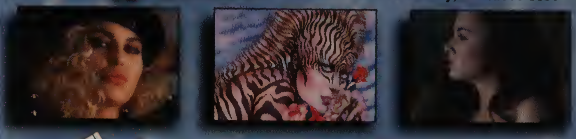

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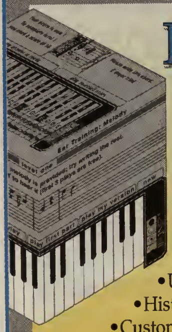

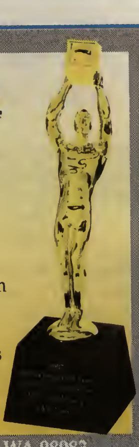

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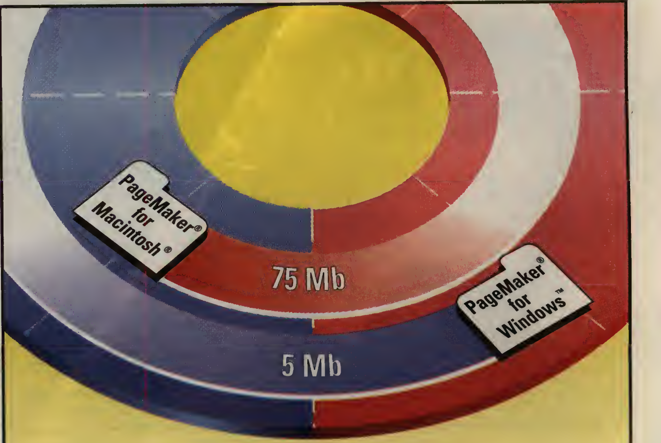

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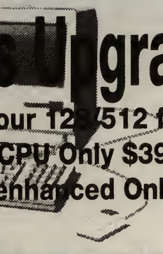

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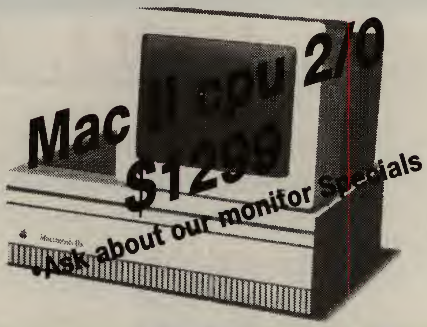

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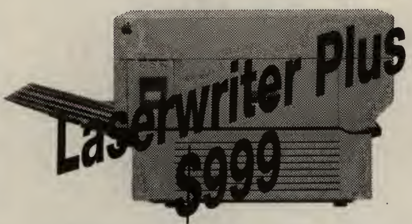

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| 1x8x80FX | $35 |
| 1x8x70FX | 36 |
| 4x8x80FX | 115 |
| 4x8x70FX | 117 |
| 8x8x80 | 399 |
| 8x8x80FX | 399 |
| 16x8x80 | 659 |
| 16x8x80FX | 659 |

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| #MP40-4MB | $615 |

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| PB140/170-2MB | 125 |
| PB140/170-4MB | 279 |
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| Global Village Powerport Full Fax | 488 |
| Global Village Teleport Full Fax | 214 |
| Global Village Teleport Modem | 128 |
| PSI Power Modem | 214 |

## MISC.

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| Quadralink | $182 |
| Quadra Video RAM 256K | 42 |
| PMMU/ MC6885 | 159 |
| Maxima | 44 |
| Optima 32/Software | 149 |
| LC 16MHz Math Co-processor | 75 |
| Classic II 16MHz Math Co-processor | 75 |

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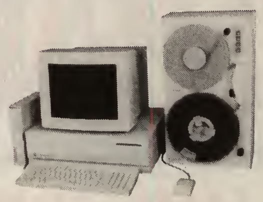

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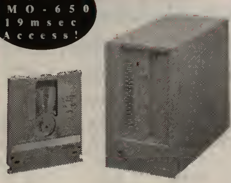

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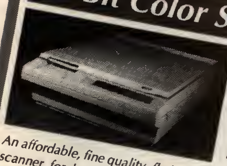

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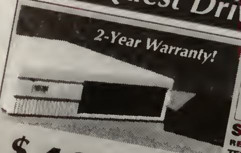

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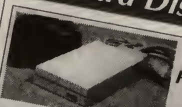

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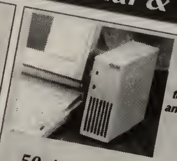
| 60 Meg. Maxtor 17 ms. | 299 |
| 80 Meg. Maxtor 17 ms. | 349 |
| 105 Meg. Quantum 25 ms. | 419 |
| 120 Meg. Maxtor 17 ms. | 429 |



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Light-weight and rugged, the Sierra is the affordable and transportable hard disk!

$429

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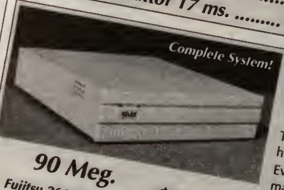
| 105 Meg. Quantum 25 ms. | 419 |
| 120 Meg. Maxtor 17 ms. | 429 |
| 240 Meg. Quantum 10 ms. | 729 |



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|---|---|---|
| 50M - LPS 52 9 ms | 229 | 289 |
| 105M - LPS 105 9 ms | 359 | 419 |
| 120M - LPS 120 10 ms | 429 | 489 |
| 240M - LPS 240 10 ms | 669 | 729 |
| 2-1/2" "Go•Drive" for PowerBook only | | |
| 80M - Go•Drive 80 16 ms | 499 | n/a |
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| 425M - Pro 425 8 ms | 1,239 | 1,299 |
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| 650M - 2263SA 16 ms | 1,299 | 1,359 |
| 960M - 2266SA 11.5 ms | 1,969 | 2,029 |

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Model 2652SA, 5-1/4" Full Height, 11.5 ms

Internal 3,339 External 3,399

| **MicroScience** 5-1/4" Full Height | | |
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| 300M - FH3414 18 ms | 799 | 859 |
| 660M - FH3777 18 ms | 1,239 | 1,299 |

| **Seagate** 3-1/2" H-Height | Internal | Vista External |
|---|---|---|
| 20M - ST325N 28 ms | 139 | 199 |
| 240M - ST2383N 12 ms | 599 | 659 |
| 425M - ST1481N 14 ms | 1,199 | 1,259 |
| 510M - ST1581N 14 ms | 1,279 | 1,339 |
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| 300M - ST4350N 16.5 ms | 1,039 | 1,099 |
| 330M - RUNNER 10.7 ms | 1,299 | 1,359 |
| 600M - ST4702N 16.5 ms | 1,439 | 1,499 |
| 660M - RUNNER 11.9 ms | 1,639 | 1,699 |
| 1.0G - ST41200N 15 ms | 1,839 | 1,899 |
| 1.4G - ST41651N 15 ms | 2,699 | 2,759 |
| 1.4G - Elite I 13 ms | 2,889 | 2,949 |
| 1.9G - ST42100N 12.9 ms. | 3,369 | 3,429 |
| 2.1G - Elite II 13 ms | 3,939 | 3,999 |
| **Maxtor** 3-1/2" Low Profile/Low Power | | |
| 120M - 7120S 17 ms | 369 | 429 |
| 5-1/4" Full Height - Panther | | |
| 645M - XT8760 16.5 ms | 1,399 | 1,459 |
| 1.0G - Panther 13 ms | 1,939 | 1,999 |
| 1.5G - Panther 13 ms | 2,439 | 2,499 |

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| 250 Meg. Tape Vista Archive | 599 |
| 600 Meg. Tape Vista TEAC | 779 |
| 2.0 Gig. DAT Sierra Archive | 1,359 |
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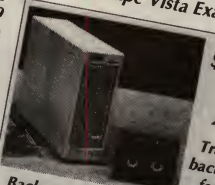

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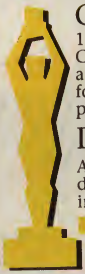

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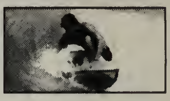

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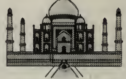

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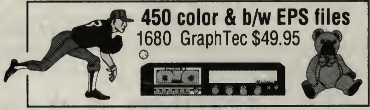

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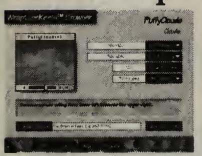

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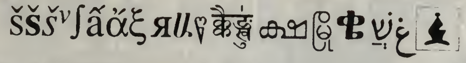

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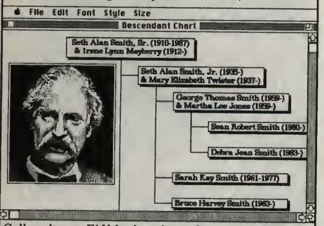

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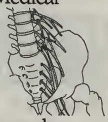

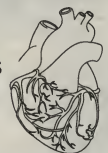

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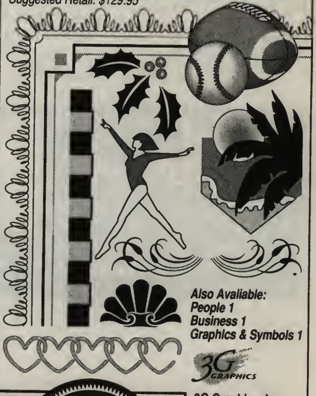

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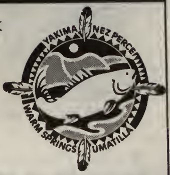

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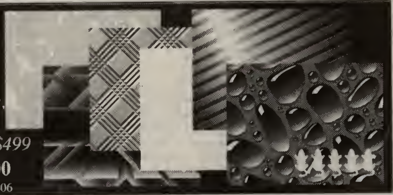

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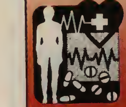

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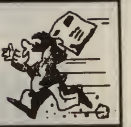

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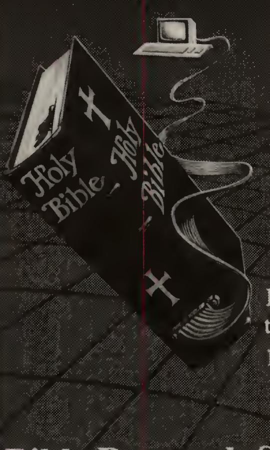

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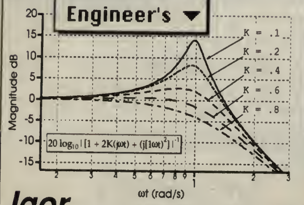

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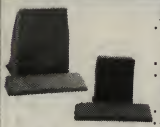

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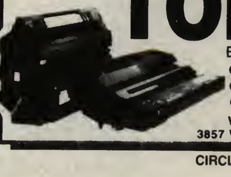

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**JOHN C. DVORAK**

# Substance Abuse

**PC users might write brilliantly, but they fail to communicate, because they're missing a simple ingredient every Mac user takes for granted.**

Do the Mac and other WYSIWYG computers produce only pretty documents devoid of content? That's the claim behind an interesting reader commentary that appeared in the *Digital Media* newsletter, published by Seybold. In it, Rudy Berger, an imaging-software consultant, moans about style over substance. Here's a tidbit for you to digest:

"Although, as a nation, they are extremely style conscious, Japanese spend almost no time at all making internal corporate documents look pretty. Content is emphasized over style, thus Japanese corporate presentations often use materials that look very crude in comparison to their slick U.S. counterparts."

Berger goes on to explore multimedia and visual presentations, calling multimedia a "black hole for creative individuals." His basic theme is that our preoccupation with style is bad and a time killer.

Although I, *MacUser*'s anti-editor, should be going along with all this, I can't honestly agree. In fact, in today's world, I believe that style is more important than substance, because the style message usually contains more information than the substance message. Subconsciously, Mac users have always sensed this — hence their original attraction to the Mac. It's no coincidence that most artists and creative types use Macs.

As I wrote last month, I've always been amused at how easy it is to spot a letter written by a Mac user as opposed to a letter written by a PC user. One look, and I immediately know what kind of computer the person owns. This informational transmission is a function of style. If the information had to be conveyed only by substance, then the person writing the letter would have to actually tell me that he owned a Mac or a PC.

The style message is an efficient gestalt. Depending on the style, you can instantly know many things about a person or a company. For instance, if you walked into a beauty salon that was decorated in hot-pink plastic flowers with an unprofessional hand-painted sign over the door, you probably wouldn't expect the staff to deliver a stunning coiffeur that would wow them at the opera. You know that a restaurant with dirty windows and cheap, unclean tableware is not going to deliver a healthy gourmet meal. All the elements are part of a gestalt, and each is a reflection of the whole.

In fact, a beautiful high-style presentation — the kind that Berger moans about — tells us that whatever effort went into the presentation probably went into the substance as well. I've seen some Japanese substance-oriented presentations, and they are poorly thought out but loaded with information — mostly useless raw information.

Although I frequently chide the Mac community for its mindless kowtowing and fanaticism, I personally wouldn't want to use anything but a Mac for document production. It's like wearing a good Italian suit. A Mac-produced document says something in addition to the mere words. What it says is that you care. Caring is much of what style is all about. And people want care more than they want raw data.

If you don't believe me, just look at advertising, an entire industry that's dedicated to the proposition that style matters more than substance if you're trying to get a message across. Do you really think it takes Ray Charles, the Raelettes, and a silly song to tell people that you want them to buy your soft drink instead of the other guy's? Only if you want the audience to pay attention. As an old soft-drink marketer, Apple's John Sculley understands this. So do the Windows people. IBM, on the other hand, may never get it.

If style didn't matter, then television ads would consist of nothing more than excerpts from *Consumer Reports* read in a monotone by a man in a conservative suit. All the raw data — the substance of the message — would be intact, but the viewers would be bored stiff.

Care is not an aspect of substance. You can't tell people how much you care. Well, you *can*, but it won't do any good. You have to show care. You show it with form and style.

Berger bemoans the preoccupation with style as a time-consuming waste. And when you go through reams of paper before you get a document to "look just right," you might agree. But, as with any form of craftsmanship, getting things perfect takes time. A subtle and important message is conveyed to recipients when they receive the "looks just right" document. They sense that the sender cares. The style message is transmitted, and an interpersonal transaction is completed. In the scheme of things, if you choose style, you'll win and the slob will lose — whatever the game.

ILLUSTRATION: ROBERT ZIMMERMAN

As of right now, you can forget anything you ever knew, or even *thought* you knew about 3D modeling on the Mac. And get to know MacroModel.

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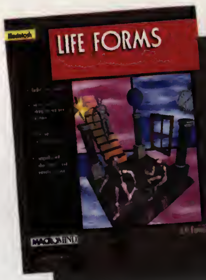

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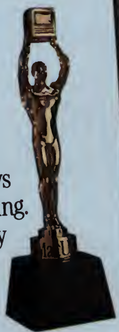

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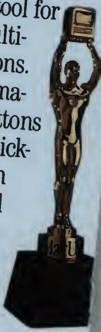

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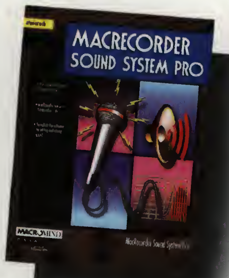

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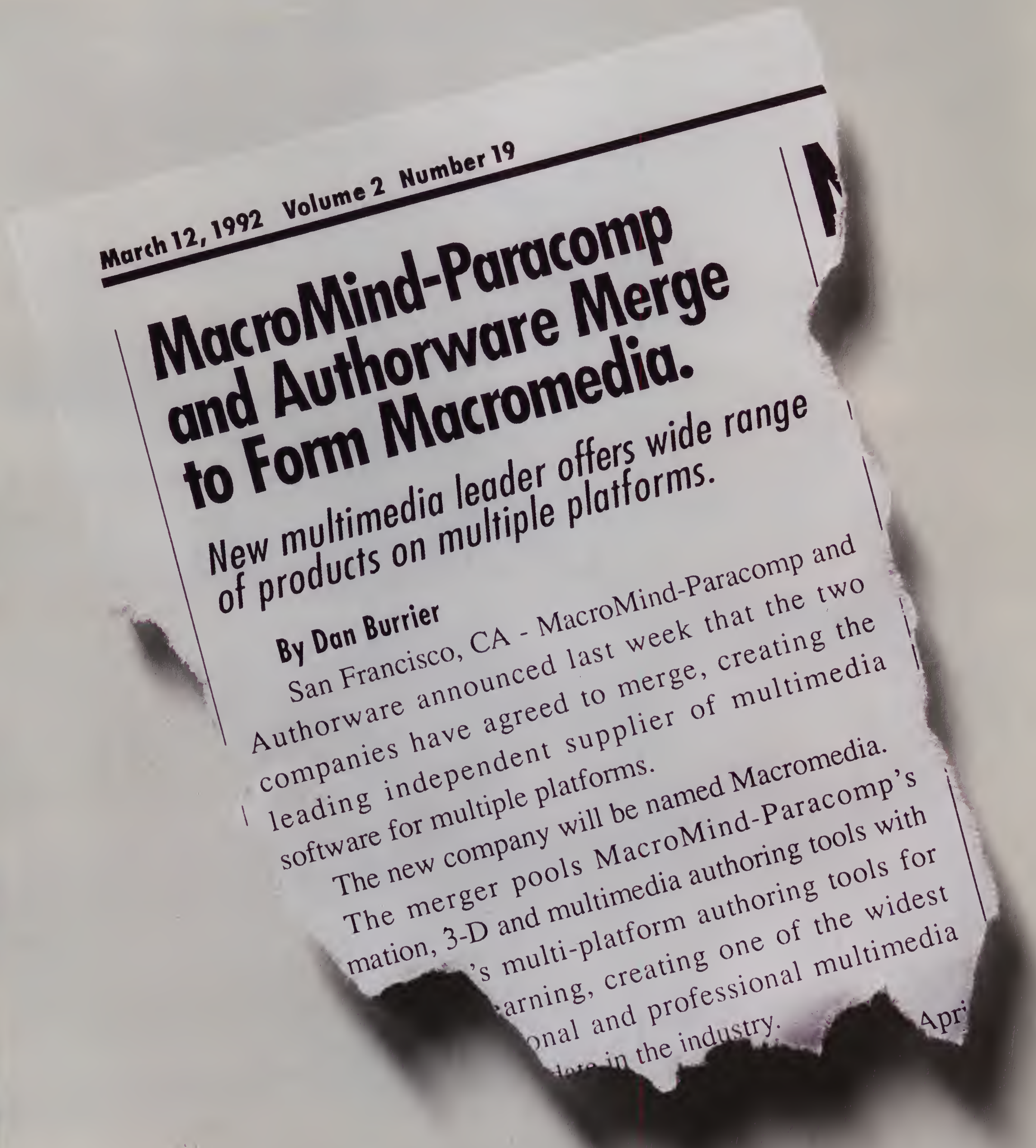

March 12, 1992 Volume 2 Number 19

## MacroMind-Paracomp and Authorware Merge to Form Macromedia.

*New multimedia leader offers wide range of products on multiple platforms.*

**By Dan Burrier**

San Francisco, CA - MacroMind-Paracomp and Authorware announced last week that the two companies have agreed to merge, creating the leading independent supplier of multimedia software for multiple platforms.

The new company will be named Macromedia.

The merger pools MacroMind-Paracomp's mation, 3-D and multimedia authoring tools with 's multi-platform authoring tools for arning, creating one of the widest onal and professional multimedia in the industry.

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What you can't see, however, is how all our products work together to make your job easier.

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*MacroModel*, for example, is the hottest new tool for building accurate 3D objects.

STEP While *MacroMind Three-D* is the tool of choice for adding animation and photo-realistic rendering to those same 3D objects.

*ClipMedia* gives you digitized video, animations, graphics, music and sound to use in your productions.

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# BEHIND THE SCENES AT MACROMEDIA

*Young Harvill–artist, holographer, virtual reality inventor, and Director of 3D Product Development–talks about Macromedia's newest 3D modeling package and how it lives up to the design team's original ideals.*

***What did you set out to do in designing MacroModel?***

We wanted to create a modeling environment that was as easy to use as Swivel 3D, as fast as Swivel 3D, but very accurate and capable of doing anything from concept design through CAD.

We also wanted to build a core technology that would last five to ten years, that would be a key part of the technical equity of the company.

***How is MacroModel more compatible with CAD than other modelers?***

The accuracy is very important. So are CAD functions like 2D and 3D snapping, being able to snap to exact geometry.

That's a main difference between Swivel 3D and MacroModel. With Swivel 3D, pretty much all the modeling is approximate–it's great for presenting concepts–but with MacroModel you can actually start with a plan or drawing and by typing in numbers and snapping to points, come up with an exact representation of your object.

***That you could then use to pass on to manufacturing?***

Yeah, you could use it to develop a comprehensive set of drawings for engineering or to go out through DXF to a CAD/CAM environment.

***What do you mean by 2D and 3D snapping?***

That MacroModel is very similar to [Adobe] Illustrator and other illustration programs, in that you're always drawing on a 2D surface that's called the working plane. Most often that plane is flat on the screen, but you can place the plane anywhere in the world, say at an angle or on top of a building, and extrude a water tower, or whatever you like, in that plane.

The plan was to give people who are familiar with 2D CAD and illustration programs all of the tools they're used to using on 2D surfaces, but once they start extruding or sweeping they can jump off into the third dimension.

I think we've been pretty successful at it.

***Now, for rendering, you'd really want to use Three-D or MacRenderMan, right?***

That's true. MacroModel's rendering is what I'd call a draft-to-good quality rendering. For the real high-quality photorealistic rendering you'd want to go to [MacroMind] Three-D for animated rendering, or to [Pixar] MacRenderMan for still-life rendering.

***You hear a lot about modeling speed. How fast is MacroModel?***

Well, one of the main things we tried to achieve was to have smooth-shaded hidden-surface images of objects be updated in a reasonable time as you model them. Basically we had to write a highly optimized renderer.

Just to give you an idea, right now we're essentially comparable with the speed of Swivel 3D, so we're rendering about 1,000 polygons per second on a IIci. And on a Quadra, just in terms of the interactivity and responsiveness of the edit, we're approaching a Silicon Graphics Personal IRIS kind of speed.

***So Swivel 3D and MacroModel are both modelers with roughly the same speed . . .***

Yeah, that's right. But they're pretty much different tasks–going from concept modeling [Swivel 3D] to having a real numerical model with curved surfaces [MacroModel] to prepare for CAD or working drawings, or to use in animations.

What we're seeing is that people who want to graduate from display modeling to models that have real dimensions–if they're trying to model real products, or extremely large worlds, if they need curved surfaces–then they should move up to MacroModel.

***And MacroModel does spline-based modeling rather than polygons. What's the advantage?***

Polygons are fine to model flat surfaces. But if you have objects with curved surfaces, the advantage to representing them with curved surfaces–splines–is that you can render at various levels depending on how much time you have or how much update speed you want.

In the long run, representing curves as polygons is just an approximation. It's not accurate.

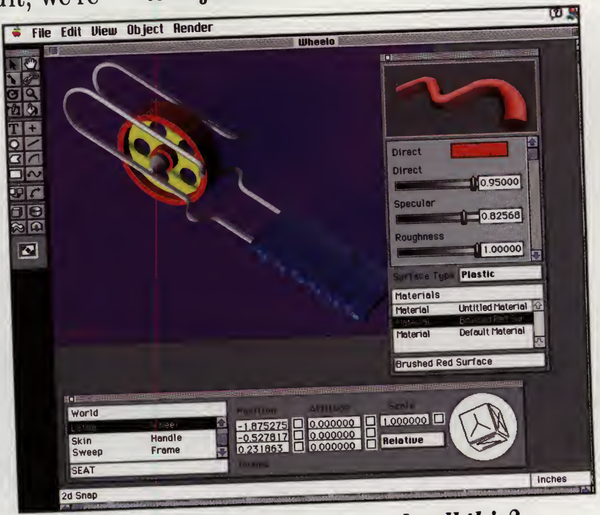
***What do you love the most about MacroModel?***

The thing I enjoy as a user is that when you create an object, MacroModel remembers how you created it. So if you make a Bezier line or put out a letter that has an Illustrator-like outline and then extrude it, MacroModel doesn't forget that you extruded it from this profile.

***So you can go back and edit the original object and the extrusion changes too?***

That's right. That was a goal we had at the beginning–and we kept it for all the different object types–that you can go back and edit the defining geometry and get updates in a reasonable time.

Other things I like are all the neat user interface things like the track ball interface, the browsers, and the numerical updating. I think it worked out really well. I think people are going to be jazzed.



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***Does anyone else do all this?***

They're beginning to. But this is the sort of stuff you have to do at the beginning–you can't go back and add it on. So I think a lot of our competitors, once they see this, are going to have to go back and rewrite everything.

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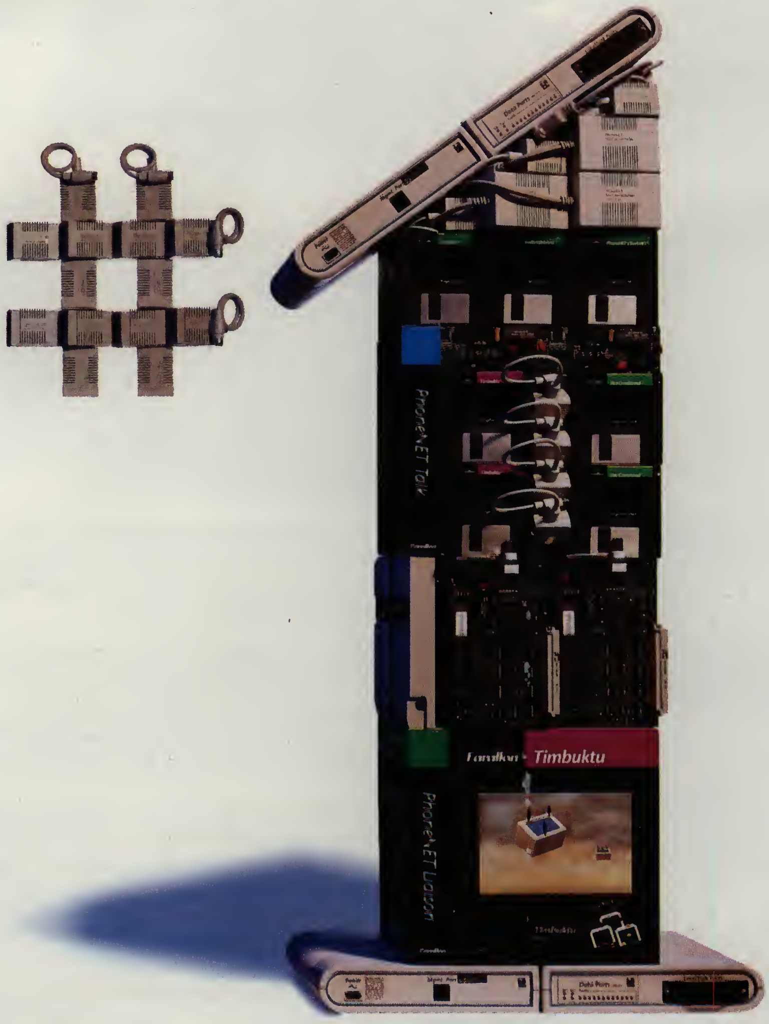

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